HITACHI

SERVICE MANUAL

DVD
VIDEO
RAM

SD
™

MultiMediaCard™

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

DVD VIDEO CAMERA/RECORDER

April   2003   Digital Media Division

Table of Contents

Information of MAN, DRV, SID and HDM Circuit Boards

During servicing, replace the entire MAN circuit board and the entire disc drive unit, including the DRV, SID and HDM circuit boards.

1 | Safety Precaution for Repair

1-1 Cautions

CAUTION

Lithium battery; danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the equipment manufacturer. Discard used batteries according to manufacturer's instructions.

When replacing the lithium battery it is important to use the same type and connect it correctly.

WARNING:

- Lithium batteries contain dangerous chemicals.
- Handle and dispose of with great care.
- Do not throw in a fire.
- Do not short circuit it.
- For disposal place in a plastic bag and put in waste bin.

PRODUCT SAFETY NOTICE

Many electrical and mechanical parts have special safety-related characteristics. These are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for a higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual. Electrical components having such features are identified by marking with a ⚠ on the schematics and the parts list in this Service Manual. The use of a substitute replacement component which does not have the same safety characteristics as the HITACHI recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards. Product safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current HITACHI Service Manual. A subscription to, or additional copies for, HITACHI Service Manual may be obtained at a nominal charge from HITACHI SALES CORPORATION.

CAUTION (COLOR LCD)

LCD display; the liquid crystal display (LCD) panel is mode by highly precise technology.

More than 99.99% of its picture elements (pixels) are effective, but some (less than 0.01%) may appear as colored bright dots. This mode not indicate a fault as the LCD panel stretches the limits of current technology.

CLASS 1
LASER PROCTECT

CAUTION

This product contains a laser diode of higher class than 1. To ensure continued safety, do not remove any covers or attempt to gain access to the inside of the product. Refer all servicing to qualified personnel.

CAUTION

There is a high-voltage section inside the DVD video camera/recorder: When repairing or inspecting it, take great care to prevent electric shock: Use an isolating transformer, wear gloves, etc.

CAUTION – VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.

1-2 Notes When Using Service Manual

The following shows the contents to be noted when using service manual:

1-2-1 Value units used in parts list

Certain symbols are indicated below for value units of resistors, capacitors and coils in parts list. When you read them note the following regular indications:

Parts	Indication in list	Regular indication
Resistor	KOHM ··· kΩ	
Capacitor	UF ··· μF	
	PF ··· pF	
Coil	UH ··· μH	
	MH ·· mH	

1-2-2 Values in schematic diagrams

The values, dielectric strength (power capacitance) and tolerances of the resistors (excluding variable resistors) and capacitors are indicated in the schematic diagrams using abbreviations.

[Resistors]

Item	Indication
Value	No indication ································· Ω
	K ··· kΩ
	M ·· MΩ
Tolerance	No indication ····························· ±5%
	(All tolerances other than ±5% are indicated in schematic diagrams)
Power capacitance	No indication ····························· 1/8W
	(1/16W for leadless resistors without indication)
	All capacitances other than the above are indicated in schematic diagrams.

[Capacitors]

Item	Indication
Value	No indication ································· μF
	P ··· pF
Dielectric strength	No indication ······························· 50V
	(All dielectric strengths other than 50V are indicated in schematic diagrams)

[Coils]

Item	Indication
Value	μ ··· μH
	m ·· mH

1-2-3 Identifications of sides A/B in circuit board diagrams

1) Board having a pattern on one side and parts on both sides.
   Side A: Shows discrete parts, viewed from the pattern side.
   Side B: Shows leadless parts, viewed from the pattern side.
2) Board having patterns on both sides and parts on both sides.
   Side A: Shows parts and patterns which can be seen when the case is opened.
   Side B: Shows parts and the pattern on the back of side A.

1-2-4 Table for indexing locations of parts

The table of "Identification of parts location" on circuit board diagrams shows locations of each part is below explanations. The locations are indicated using the guide scales on the external lines of diagrams.

1) One diagram indicated for each board
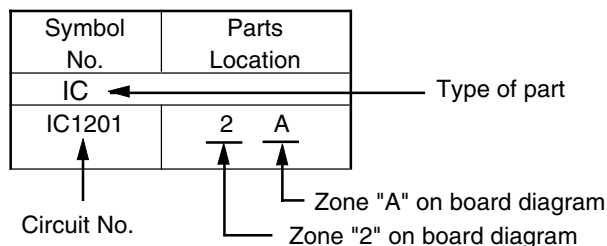
2) Two diagrams indicated for each board
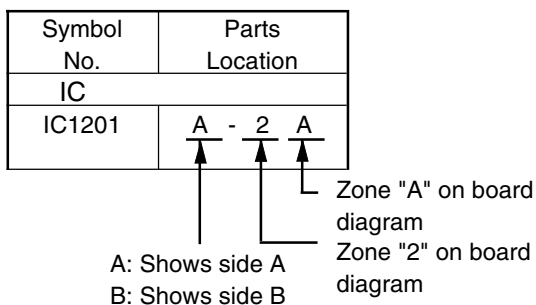
1-2-5 How to discriminate the "TYPE" identifications in the manual

The parts and circuits are identified by "TYPE" in this manual to discriminate the differences between models. The TYPE numbers are the same as the model numbers. The table below shows how to read the type identifications.

TYPE identification	Model name
TYPE 8A	Used in NTSC version [DZ-MV380A/MV380A(K)]
TYPE 8E	Used in PAL version [DZ-MV380E/MV380E(AU)/MV380E(SW)/ MV380E(SWH)/MV380E(UK)]

1-3 Electrostatic Protection Measures

Semiconductor components, including optical pickups, may be damaged by static electricity charged on clothes, human body, etc. Take great care when handling it to avoid electrostatic damage.

1-3-1 Grounding for prevention of electrostatic damage

Perform servicing in an environment where grounding is complete.

Grounding work bench (Fig. 1-3-1)

1) Lay out a conductive material (conductive sheet) or iron plate under the work bench on which semiconductor components, such as optical pickups, are placed to ground the bench.

Grounding human body (Fig. 1-3-2)

1) Use an anti-static wrist strap to discharge static electricity charged on human body. Note, however, that static electricity charged on clothes will not be discharged by anti-static wrist strap: Be careful that your clothes do not touch the semiconductor components, such as optical pickups.

Conductive material (conductive sheet) or iron plate
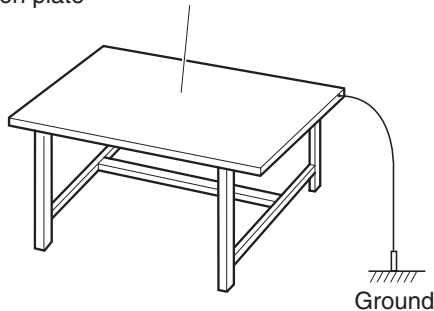
Ground

Fig. 1-3-1 Grounding work bench

Anti-static wrist strap   1M ohm
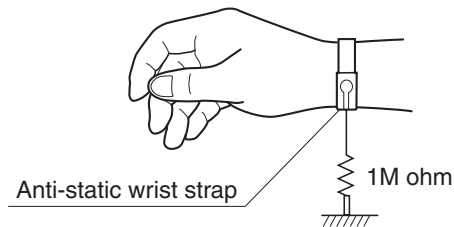
Fig. 1-3-2 Grounding human body

1-3-2 Cautions when handling optical pickup - only for DVD products

1) The optical pickup has a high precision structure: Do not subject it to any impact.
2) Do not perform disassembly further than that described in this manual.
3) Never turn the semi-variable resistors in drive unit block.

1-4 Lead-Free Solder

To protect the global environment, lead-free solder is used in this product.

Be sure to read the following before soldering.

Caution

Be sure to wear protective goggles so that no solder smoke or scattered solder enters the eye during servicing. Lead-free solder may scatter at high temperatures (600°C).

1-4-1 Characteristics of lead-free solder

The melting point of lead-free solder is 30-40°C higher than that of lead based solder.

• Composition of alloy (wt%): Sn-3.0Ag-0.5Cu

• Melting temperature: Approx. 220°C

1-4-2 Solder for servicing

It is recommended that you use lead-free solder whose characteristics are the same as that used in this product, although it is also possible to service using lead based solder. However, if lead based solder is used for servicing, some precautions are necessary. (Neglecting these could decrease strength, causing malfunctions.)

Cautions when using lead based solder:

• When replacing components, remove the lead-free solder previously used for soldered points as far as possible.

• For additional soldering, melt lead-free solder completely and mix well with lead based solder. Never perform repair using the bare soldering iron tip without adding solder.

1-4-3 Soldering iron for servicing

It is recommended that you use a soldering iron with thermal control function, with which the temperature at its tip can be set.

Lead-free solder melts at a temperature 30-40°C higher than lead based solder. Therefore, workability will be reduced unless you use a soldering iron whose temperature is high, whose temperature at tip does not change greatly (heat capacity is large), and that can be set to match the work points.

Recommended soldering iron:

• With thermal control function (temperature setting range: 320-450℃)

Recommended tip temperatures for different work points:

Work point	Recommended tip temperature
Circuit board with surface-mounted (chip) parts	320°C ± 30°C
Circuit board without surface-mounted (chip) parts	380°C ± 30°C
Chassis, metal shield	420°C ± 30°C

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2 | General Description

Destinations normally added at the end of model names, (AU), (SW), (SWH), (UK) etc. are omitted in this item.

2-1 Overview

The DZ-MV380E DVD video camera/recorder is equipped with mega-pixel CCD and high-performance lens. Since model DZ-MV380E is a higher version of DZ-MV350E, with the CCD and lens changed, it has all the features and functions of DZ-MV350E.

As for external appearance, the DZ-MV380E is larger than the DZ-MV350E, since it uses a high-performance lens.

2-1-1 Contents Included in Manual and Reference Materials

This service manual includes only differences from the DZ-MV350E manual.

The following table shows the details: See "DZ-MV350E service manual (no. 7303E)" for any items not included in this manual.

Table 2-1-1 Details Included

Item		Inclusion
1 Safety Precaution for Repair		Yes
2 General Description	2-1 Overview	
	2-2 Features	
	2-3 Specifications	
	2-4 Major Differences from Previous Models	
	2-5 List of Functions	No
	2-6 Compatibility of Recorded Discs	
	2-7 Name of Parts	
	2-8 Inserting Disc	
	2-9 List of Abbreviations and Terms for DVD Video Camera/ Recorders	
3 Description of Operation	3-1 Description of Mechanism	
	3-2 Description of Newly Adopted Technology	
4 Troubleshooting	4-1 Procedure for Troubleshooting	
	4-2 System Resetting/Resetting Camera Functions	
	4-3 Problem Guide	
	4-4 Messages and Troubleshooting	
	4-5 Self-Diagnosis Function and Troubleshooting	
	4-6 Checking Versions of Firmware and Updating	
	4-7 Trouble Diagnosis	Yes
	4-8 Procedure for Removing Disc from Faulty DZ-MV380E	
	4-9 Special Functions	No
5 Disassembly and Reassembly	5-1 Preparations for Disassembly	Yes
	5-2 Order of Disassembly	
	5-3 Disassembly	
6 Adjustment	[Note: The item will be included later.]	-------
7 Exploded View and Parts List	7-1 Exploded Views	Yes
	7-2 Replacement Parts List	
Schematic, Circuit Board and Block Diagrams		

2-1-2 Servicing method

Table 2-1-2 shows the method for servicing each circuit board and each unit.

Refer to "4 Troubleshooting" for the method of judging defects in each circuit board and each unit.

Information:

These servicing methods are subject to change without notice for the purpose of facilitating service procedures.

Table 2-1-2 Circuit Board and Unit Servicing Method

Circuit board/Unit	Servicing method
AEL circuit board	Component replacement.
DRF circuit board	
DRV circuit board	Included in disc drive unit.
FAF circuit board	Component replacement.
FRT circuit board	
GYR circuit board	
HDM circuit board	Included in disc drive unit.
LCD circuit board	Component replacement.
MAN circuit board	Circuit board assembly replacement (Order format). Except for the fuse trouble.
MR circuit board	Component replacement.
SAF circuit board	
SEN circuit board	
SHE circuit board	
SID circuit board	Included in disc drive unit.
USB circuit board	Component replacement.
Disc drive unit	Unit replacement (Order format). Which incorporates the DRV, SID and HDM circuit boards.
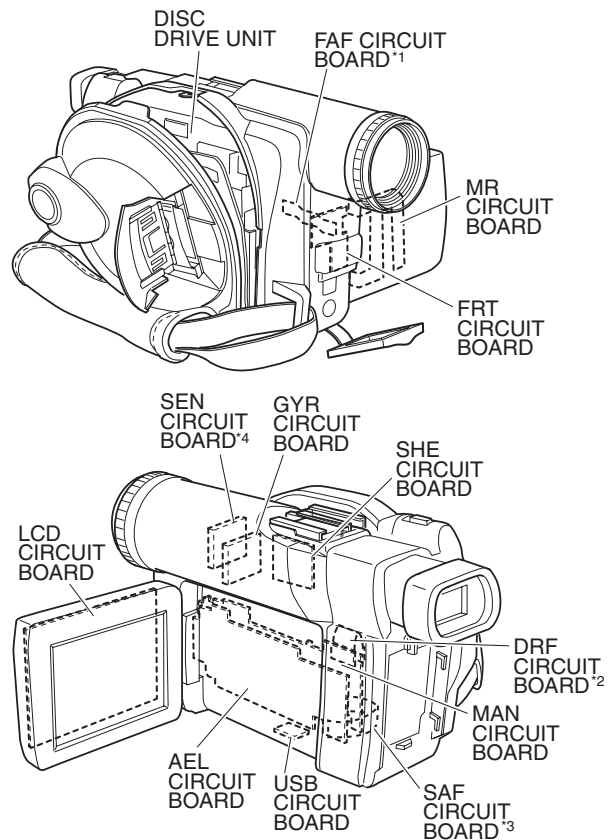
*1: Film type board that connects AEL and FRT circuit boards

*2: Film type board that connects MAN circuit board and disc drive unit.

*3: Film type board that connects AEL circuit board and switches in L case.

*4: The DZ-MV350E included the CCD mounting circuit board in lens unit; the DZ-MV380E does not.

Fig. 2-1-1 External Views of the Circuit Board/Unit

2-2 Features

Mounting 1,020,000-pixel CCD (image sensor)

A CCD with a total number of 1,020,000 pixels (the number of effective pixels: 570,000 pixels for video, 960,000 pixels for photo) is mounted to ensure high resolution and faithful color resolution.

Mounting a high-performance lens

A high-performance multi-coated aspheric lens is mounted.
Multi-coating eliminates flare/ghost, and aspheric lens reduces astigmatism, thereby allowing maximum performance of the CCD.

1,020,000-pixel CCD

High-performance lens
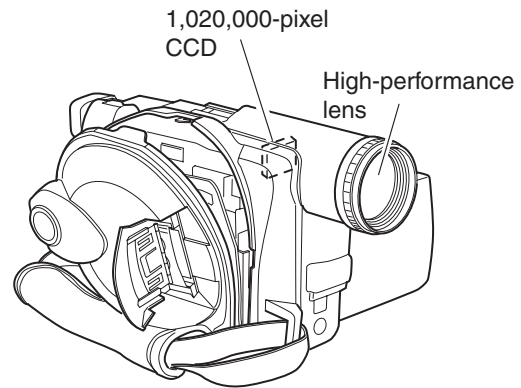
Fig. 2-2-1 Media Storage Available on DZ-MV380E

2-3 Specifications

The specifications in shaded columns are different from those of previous models.

Specifications are subject to change without notice for the purpose of improvement.

Item		DZ-MV380E	DZ-MV350E

CCD		1/3.8-inch interlaced
		Total number of pixels:
		    Approx. 1020,000
		Number of effective pixels:
		    Video: Approx. 570,000
		    Photo: Approx. 960,000
			1/4-inch interlaced
			Total number of pixels:
			    Approx. 800,000
			Number of effective pixels:
			    Video: Approx. 410,000
			    Photo: Approx. 410,000

Lens		F1.8 - 2.4, f = 3.8 - 38 mm Filter diameter: 37 mm	F1.8 - 2.5, f = 3.15 - 31.5 mm Filter diameter: 30.5 mm
Focus		Auto/Manual	Auto/Manual
Zoom		Optical 10×, 40 - 240× with digital zoom added (40× for photo)	Optical 10×, 40× - 240× with digital zoom added (40× for photo)
Required minimum illumination		0.3 lx (When Low Light mode is selected)	0.1 lx (When Low Light mode is selected)
Viewfinder		0.44-inch color TFT (approx. 110,000 pixels)	0.44-inch color TFT (approx. 110,000 pixels)
LCD monitor		2.5-inch color TFT (approx. 1,200,000 pixels)	2.5-inch color TFT (approx. 1,200,000 pixels)
Image Stabilizer		Electronic Type	Electronic Type
Shutter speed		1/60 - 1/4000 (video)	1/60 - 1/4000 (video)
Self-timer recording		Photo recording only	Photo recording only
External microphone jack		Ø 3.5 mm stereo mini-jack	Ø 3.5-mm stereo mini-jack
Recording mode		Video (with audio)	Video (with audio)
		Photo (DVD-RAM disc, SD memory card, MultiMediaCard)	Photo (DVD-RAM disc, SD memory card, MultiMediaCard)
Maximum recordable time (per side)	DVD-RAM disc	XTRA mode: Approx. 18 min. FINE mode: Approx. 30 min. STD mode: Approx. 60 min.	XTRA mode: Approx. 18 min. FINE mode: Approx. 30 min. STD mode: Approx. 60 min.
	DVD-R disc	FINE mode: Approx. 30 min. STD mode: Approx. 60 min.	FINE mode: Approx. 30 min. STD mode: Approx. 60 min.
	DVD-RAM disc (per side)	999 (However, if video and photo are mixed on one disc, the recordable number will decrease)	999 (However, if video and photo are mixed on one disc, the recordable number will decrease)
Maximum number of recordable photos	Card (When using 32MB SD memory card)	Approx. 50 (in FINE mode) (Varies depending on the recording quality and the type of card)	Approx. 220 (in FINE mode) (Varies depending on the recording quality and the type of card)
Recording format	DVD-RAM disc	Video: Conforming to DVD video recording format Photo: Simultaneous recording, conforming to DVD video recording format (704 × 576 pixels) and JPEG (1280 × 960 pixels)	Video: Conforming to DVD video recording format Photo: Simultaneous recording, conforming to DVD video recording format (704 × 576 pixels) and JPEG (640 × 480 pixels)

Item		DZ-MV380E	DZ-MV350E
Recording format	DVD-R disc	Video: Conforming to DVD video format (MPEG Audio layer 2)	Video: Conforming to DVD video format (MPEG Audio layer 2)
	Card	Photo: Conforming to JPEG (1280 × 960 pixels) standard	Photo: Conforming to JPEG (640 × 480 pixels) standard
Audio playback format		MPEG Audio layer 2, Dolby AC3	MPEG Audio layer 2, Dolby AC3
Recording media		8 cm DVD-RAM disc (conforming to DVD-RAM Ver. 2.1) 8 cm DVD-R disc (conforming to DVD-R for General Ver. 2.0) SD memory card MultiMediaCard	8 cm DVD-RAM disc (conforming to DVD-RAM Ver. 2.1) 8 cm DVD-R disc (conforming to DVD-R for General Ver. 2.0) SD memory card MultiMediaCard
Jacks		Video/audio output × 1 External microphone input × 1 PC connection terminal (connected to PC USB port) × 1	Video/audio output × 1 External microphone input × 1 PC connection terminal (connected to PC USB port) × 1
Battery system		Lithium-ion	Lithium-ion
Power consumption (when recording with LCD monitor off)		Approx. 5.0 W (FINE mode)	Approx. 4.7 W (FINE mode)
Dimensions (W × H × D, excluding projections)		Approx. 60 × 93 × 148 mm	Approx. 57 × 89 × 134 mm
Operating temperature (humidity)		0-40°C (less than 80%) 0-30°C when connected to PC	0-40°C (less than 80%) 0-30°C when connected to PC
Storage temperature		-20 - 60°C	-20 - 60°C
Weight (excluding battery and disc)		Approx. 505 g	Approx. 480 g
Total weight when recording		Approx. 590 g (when using DZ-BP14S battery)	Approx. 565g (when using DZ-BP14S battery)
Provided accessories		AC adapter/charger, battery, AV/S output cable, infrared remote control, Lithium battery for remote control, lens cap, lens cap string, shoulder strap, power cable, DC power cord, ferrite core, software CD-ROM, PC connection cable, 8cm DVD-R disc (in round DVD holder)	AC adapter/charger, battery, AV/S output cable, infrared remote control, Lithium battery for remote control, lens cap, lens cap string, shoulder strap, power cable, DC power cord, ferrite core, software CD-ROM, PC connection cable, 8cm DVD-R disc (in round DVD holder)

Specifications of DZ-ACS1 AC Adapter/Charger (Reference)

Power supply	100 - 240 V AC, 50/60 Hz
Input capacity	26 VA (at 100 V)
DC output (max.)	7.9 V, 1.4 A
Charge output	8.4 V, 0.65A
Weight	105 g
External dimensions (W x H x D)	61 × 32 × 91 mm
Ambient temperature for operation	5 - 35°C
Allowable relative humidity	40 - 80%

2-4 Major Differences from Previous Models

Item		DZ-MV380E	DZ-MV350E

CCD		1/3.8-inch interlaced
		Total number of pixels:
		    Approx. 1020,000
		Number of effective pixels:
		    Video: Approx. 570,000
		    Photo: Approx. 960,000
			1/4-inch interlaced
			Total number of pixels:
			    Approx. 800,000
			Number of effective pixels:
			    Video: Approx. 410,000
			    Photo: Approx. 410,000

Lens		F1.8 - 2.4, f = 3.8 - 38 mm Filter diameter: 37 mm	F1.8 - 2.5, f = 3.15 - 31.5 mm Filter diameter: 30.5 mm
Maximum number of recordable photos for card (When using 32MB SD memory card)		Approx. 50 (in FINE mode) (Varies depending on the recording quality and the type of card)	Approx. 220 (in FINE mode) (Varies depending on the recording quality and the type of card)
Recording format	DVD-RAM disc	Video: Conforming to DVD video recording format (MPEG Audio layer 2) Photo: Simultaneous recording, conforming to DVD video recording format (704 × 576 pixels) and JPEG (1280 × 960 pixels)	Video: Conforming to DVD video recording format (MPEG Audio layer 2) Photo: Simultaneous recording, conforming to DVD video recording format (704 × 576 pixels) and JPEG (640 × 480 pixels)
	Card	Photo: Conforming to JPEG (1280 × 960 pixels) standard	Photo: Conforming to JPEG (640 × 480 pixels) standard
Power consumption (when recording with LCD monitor off)		Approx. 5.0 W (FINE mode)	Approx. 4.7 W (FINE mode)
Dimensions (W × H × D, excluding projections)		Approx. 60 × 93 × 148 mm	Approx. 57 × 89 × 134 mm
Weight (excluding battery and disc)		Approx. 505 g	Approx. 480 g
Total weight when recording		Approx. 590 g (when using DZ-BP14S battery)	Approx. 565 g (when using DZ-BP14S battery)
Accessory shoe		Power/control terminal provided (External flash: DZ-FLH3 mountable)	Power/control terminal not provided

Information:

1) Although the DZ-MV350E included the CCD mounting circuit board in lens unit, the DZ-MV380E does not: With the DZ-MV380E, the lens unit and CCD mounting circuit board (SEN circuit board) are discrete components. Also, the CCD is set as an independent part.

2) The DZ-MV380E disassembly procedure is different from that for DZ-MV350E because the lens unit, CCD and accessory shoe have been changed.

2-5 List of Functions

Destinations normally added at the end of model names, (AU), (SW), (SWH), (UK), etc. are omitted in this table. The specifications in shaded columns are different from those of previous models.

Item		DZ-MV350E	DZ-MV238E/MV230E
Switching on-screen language		English/French/German/Spanish/ Italian	English/French/German/Spanish/ Italian
Demonstration mode		Auto/Off/Start	Auto/Off/Start
Full Auto button		Equipped	------------------------
Disc protect		Software disc-protect	Mechanical write-protect on cartridge
Camera functions	Minimum distance for recording	Wide-angle side: Approx. 2 cm Telephoto side: Approx. 1 m	Wide-angle side: Approx. 1 cm Telephoto side: Approx. 1 m
	Program AE	Auto/Sports/Portrait/Spotlight/ Sand&Snow/Low Light	Auto/Sports/Portrait/Spotlight/ Sand&Snow/Low Light
	White balance	Auto/Set/Outdoor/Indoor	Auto/Hold
	Digital zoom	240×/40×/Off	240×/48×/Off
	Microphone filter	On/Off	------------------------
	16:9	On/Off	On/Off
	Exposure correction	Auto/Manual	Auto/Manual (used in common with backlight correction)
	Backlight correction	Exclusive button equipped	------------------------
	Input selection	------------------------	CAMERA/LINE (analog video signal input from external device) (DZ-MV238E only)
Disc record functions	External photo input	------------------------	Frame/Field (DZ-MV238E only)
	Number of pixels for video (MPEG2)	XTRA/FINE: 704 × 576 pixels STD: 352 × 576 pixels	XTRA/FINE: 704 × 576 pixels STD: 352 × 576 pixels
	Number of pixels for photo during camera recording	JPEG: 640 × 480 pixels MPEG: 704 × 576 pixels	JPEG: 1280 × 960 pixels MPEG: 704 × 576 pixels
	Number of pixels for photo during line-input recording in FRAME mode	JPEG: 640 × 240 pixels MPEG: 704 × 288 pixels	JPEG: 640 × 240 pixels MPEG: 704 × 288 pixels
	Number of pixels for photo during line-input recording in FIELD mode	JPEG: 640 × 480 pixels MPEG: 704 × 576 pixels	JPEG: 640 × 480 pixels MPEG: 704 × 576 pixels
	Copying photos to card	Enable on Disc Navigation function	------------------------
Card record functions	Number of pixels on photo	JPEG: 640 × 480 pixels	------------------------
	File size of photo	FINE: Approx. 128KB NORM: Approx. 64KB ECO: Approx. 32KB	------------------------

	Item	DZ-MV350E	DZ-MV238E/MV230E
Jacks	Video/audio output	10-pin exclusive terminal (S/video/audio L/audio R) × 1	Ø 3.5 mm (video/audio L/audio R) × 1 (DZ-MV238E is input/ouput)
	S-Video output	Included in Video/audio output terminal	S-Video output terminal × 1
	External microphone	Ø 3.5 mm stereo × 1	Ø 3.5 mm stereo × 1
	PC connection	Type B (mini USB), USB2.0	Type B (mini USB), USB1.1
	Accessory shoe	Power/control terminal not provided	Power/control terminal provided (external flash: DZ-FLH3, DC light: DZ-LD9 mountable)
Disc Navigation function	With disc	(see tree diagram below)	(see tree diagram below)
	With card	(see tree diagram below)	-------------------------

Disc Navigation function — With disc (DZ-MV350E):

```
Scene ─── Delete [RAM]
       ─── Edit [RAM] ─── Thumbnail
       ─── Copy [RAM] ─── Skip
                       ─── Fade
                       ─── Combine
                       ─── Divide
                       ─── Move
       ─── Select ─── Start -> Current
            [RAM/R] ─── Current -> End
                    ─── All
       ─── Detail [RAM/R]

PlayList ─── Switch
  [RAM]  ─── Play
         ─── Create
         ─── Edit
         ─── Title
         ─── Delete

Program ─── Switch [RAM/R]
        ─── Play [RAM/R]
        ─── Title [RAM]

Go To ─── Top
[RAM/R] ─── End

Disc ─── Capacity [RAM/R]
     ─── Protect Disc [RAM]
     ─── Format Disc [RAM]
     ─── Update Control Info. [RAM]
     ─── Finalize [R]

ETC. Other ─── Category [RAM]
settings   ─── Repeat Play [RAM/R]
```

Disc Navigation function — With disc (DZ-MV238E/MV230E):

```
Scene ─── Delete [RAM]
       ─── Edit [RAM] ─── Fade
       ─── Skip      ─── Combine
                     ─── Divide
                     ─── Move
       ─── Select ─── Start -> Current
            [RAM/R] ─── Current -> End
       ─── Detail [RAM/R]

PlayList ─── Switch
  [RAM]  ─── Play
         ─── Create
         ─── Edit
         ─── Title
         ─── Delete

Program ─── Switch [RAM/R]
        ─── Play [RAM/R]
        ─── Title [RAM]

Disc ─── Capacity [RAM/R]
     ─── Format Disc [RAM]
     ─── Update Control Info. [RAM]
     ─── Finalize [R]

ETC. Other ─── Repeat Play [RAM/R]
```

Disc Navigation function — With card (DZ-MV350E):

```
Scene ─── Delete
       ─── Lock
       ─── DPOF
       ─── Select ─── Start -> Current
       ─── Detail ─── Current -> End
                  ─── All

Go To ─── Top
      ─── End

Card ─── Capacity
     ─── Format Card

Slide Show ─── All
           ─── DPOF
```

[RAM/R]: Operable with both DVD-RAM and R discs
[RAM]:   Operable with DVD-RAM disc only
[R]:   Operable with DVD-R disc only

Item		DZ-MV350E	DZ-MV238E/MV230E
Power supply	Power voltage	7.2 V DC	7.2 V DC
	AC adapter/ charger	DZ-ACS1	DZ-ACE1 (AC adapter)
	Battery charge system	By attachment to AC adapter/charger	By attachment to DVD video camera/ recorder
	Available batteries	DZ-BP14S: 7.2 V/1360mA (provided) DZ-BP14SW: 7.2 V/1360 mA (optional)	DZ-BP28: 7.2 V/2800mA (optional) DZ-BP14(R)/BP16: 7.2 V/700 mA (provided/optional)
	Battery charge time[*1]	DZ-BP14S: Approx. 165 min. (when using DZ-ACS1) DZ-BP14SW: Approx. 165 min. (when using DZ-ACS1)	DZ-BP28: Approx. 270 min. (when using DZ-ACE1) DZ-BP14(R)/BP16: Approx. 170 min. (when using DZ-ACE1)
	Continuous video recordable time[*1]	DZ-BP14S: Approx. 40 - 60 min. DZ-BP14SW: Approx. 40 - 60 min.	DZ-BP28: Approx. 70 - 100 min. DZ-BP14(R)/BP16: Approx. 40 - 60 min.

*1: The charge time and continuous video recordable time are only for reference: They may greatly vary depending on the charge/use conditions.

2-6 Compatibility of Recorded Discs

DVD-RAM[*1] and DVD-R discs recorded or edited on DZ-MV350E can also be recorded, edited or played back on other video camera/recorders: However, DZ-MV100E is not compatible with DVD-R disc.

DVD-RAM and DVD-R discs recorded or edited on other video camera/recorders can also be recorded, edited or played back on DZ-MV350E: However, a scene memo recorded using the DZ-MV100E Disc Navigation function cannot be played back or edited on DZ-MV350E.

*1: Except for DVD-RAM discs for which disc-protect has been set.
   The disc-protect set on DZ-MV350E cannot be released on other DVD video camera/recorders:
   See "3-2-3 Software disc-protect function" for details.

2-7 Name of Parts
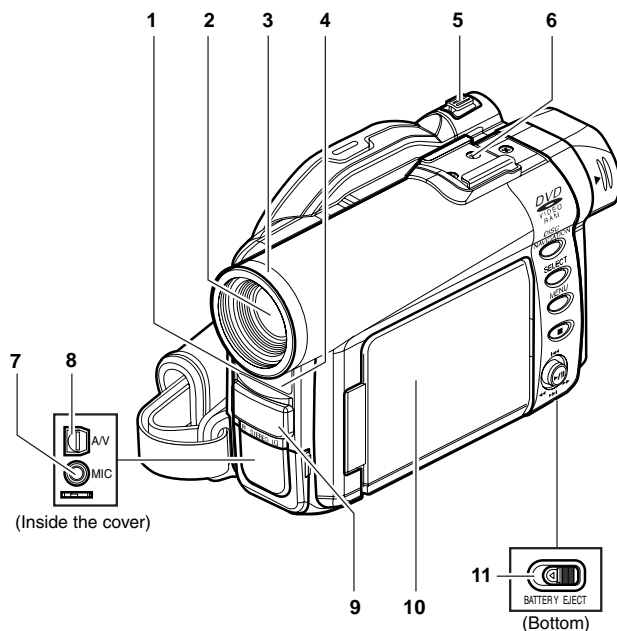
1 Recording indicator
The red indicator will light during recording.

2 Optical 10× zoom lens

3 Lens hood
Always remove this lens hood when using generally available tele-conversion or wide-conversion lens.

4 Infrared receiver
When the remote control is used to operate the DVD video camera/recorder, this receiver will receive the infrared signal.

5 Zoom lever
Push the lever to the T side for telephoto, or to the W side for wide-angle.

6 Accessory shoe

7 External microphone jack

8 AV output jack

9 Stereo microphone

10 2.5" type liquid crystal display (inside)

11 BATTERY EJECT switch
The BATTERY EJECT switch is located on the bottom of this DVD video camera/recorder: Slide it when removing the battery.

(Inside the cover)

(Bottom)
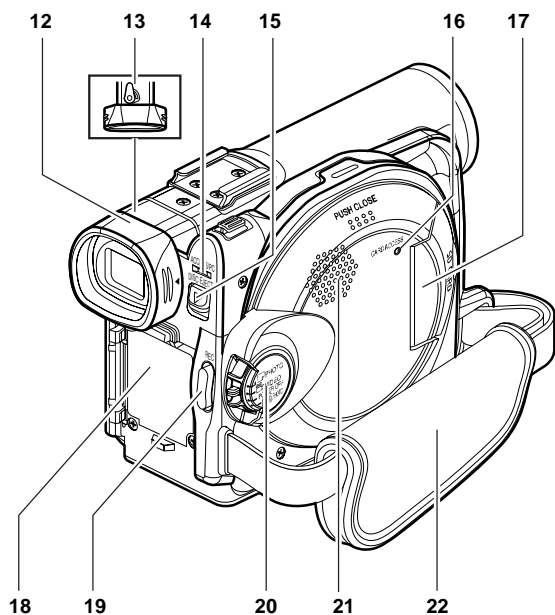
12 Viewfinder

13 Diopter control
To adjust the focus of image appearing in the viewfinder. (Pull out the viewfinder.)

14 ACCESS/PC indicator
Will blink or light while the DVD video camera/recorder is operating.

15 DISC EJECT button
Press down and release this button to open the disc guide.

16 CARD ACCESS indicator

17 Card insertion block

18 Battery attachment platform

19 Record button (REC)

20 Power switch

21 Speaker

22 Hand strap

23   24   25   26   27   28   29

30   31   32   33   34   35
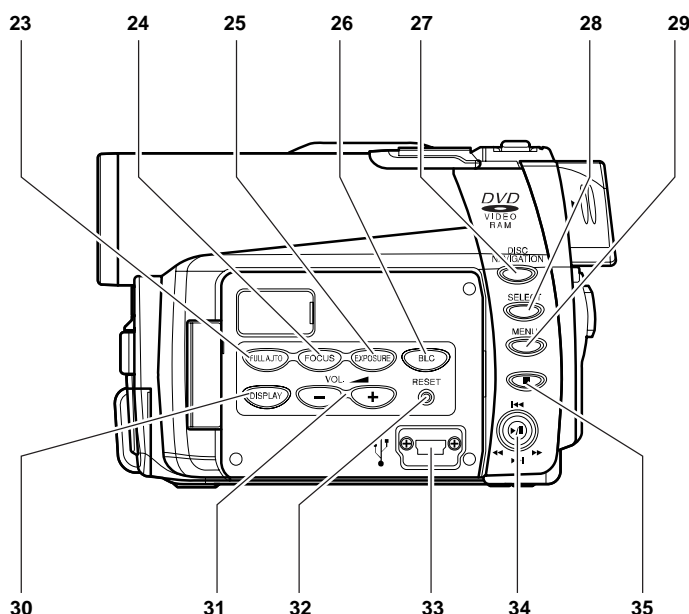
23 FULL AUTO button
To switch the DVD video camera/recorder to full automatic.

24 FOCUS button
To switch between manual focus and auto-focus.

25 EXPOSURE button
Press this button to adjust the exposure.

26 BLC (backlight compensation) button
Press this button when subject is being lighted from rear.

27 DISC NAVIGATION button

28 SELECT button

29 MENU button
Press this button to display the menu for setting camera functions and Disc Navigation.
The camera menu will appear even if disc is not loaded.

30 DISPLAY (Screen display) button (P. 71)
Press this button to display the details of image being playedback or camera setting status, or switch the display off.

31 Volume control buttons (VOL)/ ⊕ ⊖ buttons
To adjust the volume of sound from speaker, etc.

32 RESET button
To reset all settings to defaults (status when the DVD video camera/recorder was shipped from the factory)

33 PC connection terminal (TO PC)

34 Joystick

Move the joystick to select a scene or menu item; then play back the scene or pause it.

35 Stop/cancel button
To end play back or cancel setting of menu.
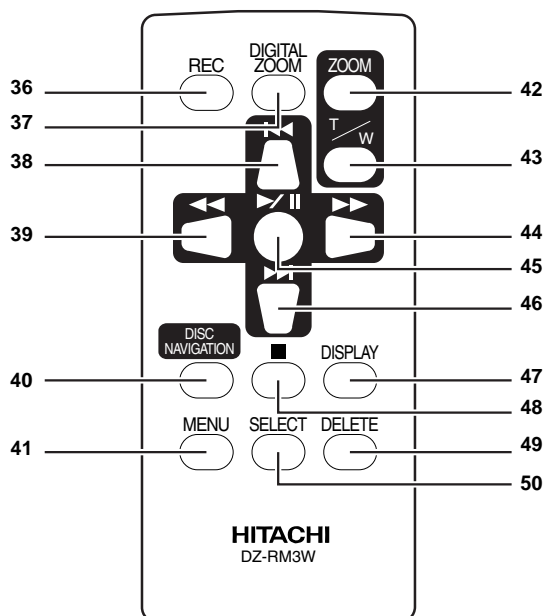
36 REC button

37 DIGITAL ZOOM button

38 Reverse skip button

39 Reverse search button

40 DISC NAVIGATION button

41 MENU button

42 ZOOM T button

43 ZOOM W button

44 Forward search button

45 Play/pause button

46 Forward skip button

47 DISPLAY button

48 Stop button

49 DELETE button

50 SELECT button

36 REC   DIGITAL ZOOM   ZOOM   42
37   43
38
39   ◄◄   ►/II   ►►   44
                        45
                        46
40 DISC NAVIGATION   ■   DISPLAY   47
                        48
41 MENU   SELECT   DELETE   49
                        50

HITACHI
DZ-RM3W

* The buttons on remote control will function the same as those on DVD video camera/recorder.

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2-8 Inserting Disc

(1) Inserting disc to DVD video camera/recorder

1 Press down the DISC EJECT button once and release it.

A few moments after the ACCESS/PC indicator blinks, the cover of disc insertion block will open slightly.

2 Gently open the cover by hand until it stops.

3 Insert the disc, in Round DVD Holder, into the disc guide until it stops.

Note that the recording/playback surface of disc must face the inside of DVD video camera/ recorder. The orientation for inserting the disc into the disc guide is also predetermined: Load the disc correctly, referring to the figure.

4 Push the section marked "PUSH CLOSE" on the cover of disc insertion block, to close the cover.

5 Turn the DVD video camera/recorder on (📹VIDEO or ▢PHOTO).

When "DISC ACCESS" disappears, the DVD video camera/recorder is ready for recording.
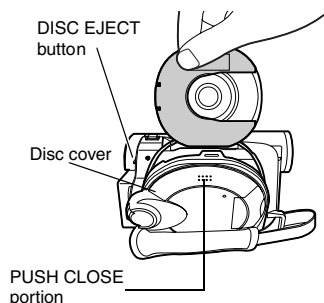
● **Identifying recording/playback sides of disc :**

Single sided disc :
The recording/playback side is opposite to the printed label.
Double-sided disc :
The recording/playback side of "SIDE A" is opposite to the "SIDE A" marked side.
The recording/playback side of "SIDE B" is the "SIDE A" marked side.

DISC EJECT button

Disc cover

PUSH CLOSE portion

Correct orientation   Incorrect orientation

Incorrect orientation

Disc guide

"SIDE A" mark

The opposite side is the "SIDE A" recording/playback side.
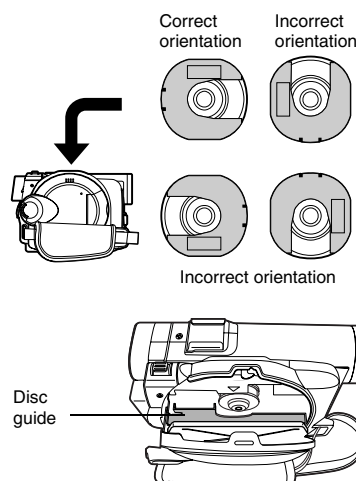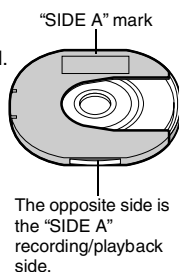
(2) Removing disc from round DVD holder

1 Hold the Round DVD Holder with SIDE A facing up. While pushing the two release levers in the direction of arrows (1) marked on holder, slowly open SIDE A of the holder in the direction of arrows (2), taking care not to drop the disc.

2 Without touching the recording/playback surface, hold the disc edge and center hole to remove it.

Release levers

1

1

SIDE A mark

2

2

Do not open more than 90˚.

(3) Replacing disc in round DVD holder

1 Open SIDE A of the Round DVD Holder, and replace the disc in the holder with the SIDE A mark or label surface facing up, taking care not to touch the disc surface.

2 Close SIDE A of the Round DVD Holder, and push it to lock the release levers at positions (3).

(4) When the hinge of round DVD holder comes off

1 Push the hinged portion of the holder piece marked SIDE A with thumb and middle finger, and warp it in the direction of arrows (4).

2 Fit the hinged portion of the other holder piece into the warped hinge portion.

Note:

- Handle the disc carefully so that no scratch, dirt, fingerprint or dust adheres to the recording/playback surface.

- When not using the Round DVD Holder, store it in case: Do not leave a bare holder as is.

- Be careful of drop or impact: If you drop the Round DVD Holder, the disc may pop out.

- Do not subject the Round DVD Holder to force.

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2-9 List of Abbreviations and Terms for DVD Video Camera/Recorders

Index	Abbreviation/Term	Explanation
A	AC3	See Dolby AC3.
C	CPRM	Content Protection for Recordable Media: Security technology (cross-certification technology) for SD memory card.
D	DCF	Design rule for Camera File system standard: This camera file system standard, established by JEIDA (now merged to JEITA).
	Dolby AC3	Audio coding format developed by Dolby Laboratories in U.S, also simply referred as AC3 format: Supports 5-channel full-range sound and one channel for sub-woofer sound playback.
	DPOF	Digital Print Order Format: DPOF allows user to record print information along with photos on storage media to facilitate printing of photos.
	DVD	Digital Versatile Disc. A huge amount of digital data for video (movie) and audio can be recorded on this disc, whose size is the same as CD.
	DVD Forum	International organization that formulates the technical standards of DVD
	DVD-Audio	One type of DVD standard disc, on which high-quality audio can be recorded
	DVD-R	One type of DVD standard disc, to which writing once is possible (recordable type)
	DVD-RAM	One type of DVD standard disc, to which writing up to 100,000 times is possible
	DVD-ROM	One type of DVD standard disc, to which data for computer can be recorded
	DVD-RW	One type of DVD standard disc, to which writing up to 1000 times is possible
	DVD-Video	One type of DVD standard disc, on which high-quality video and audio can be recorded
	DVD Video Format	Video recording/playback standard that applies to DVD-Video, DVD-R and DVD-RW
	DVD Video Recording Format	Video recording/playback standard that applies to DVD-RAM and DVD-RW: This allows versatile editing functions, differing from the DVD Video Format.
E	Exif	Exchangeable image file format. File format used for recording photos on digital cameras, established by JEIDA (now merged to JEITA).
F	FireWire	See IEEE1394.
I	IEEE1394	Also referred to as FireWire or i-LINK: Standard for serial interface that connects PC and peripheral devices
	Interlaced CCD	This CCD scans one image twice (scans roughly once and interpolates between first scanning lines the second time) and interlaces the images obtained by scanning twice to create a one-image signal.
	i-LINK	See IEEE1394.
J	JEIDA	JEIDA stands for Japan Electronic Industry Development Association.
	JEITA	JEITA stands for Japan Electronics and Information Technology Industries Association, which came into existence when JEIDA merged with EIAJ (Electronic Industries Association of Japan). JEITA has established Exif and DCF standard.
	JPEG	Joint Photographic Expert Group: International standard format for compressing still images
L	LCD	Liquid Crystal Display. LCD formats include STN and TFT.
	LPCM	Linear Pulse Code Modulation. Also referred to as linear PCM. LPCM is a format that digitizes analog audio data during recording and converts it to analog data during playback.
M	MMC	See MultiMediaCard.
	MMCA	See MultiMediaCard Association.

Index	Abbreviation/Term	Explanation
M	MPEG	Motion Picture Experts Group: Standard related to compression of digital video and audio. MPEG2 is a higher standard of MPEG and is applied to video (movie) requiring higher quality.
	MPEG Audio Layer 2	One of three audio compression standards (layers 1-3) defined by MPEG
	MultiMediaCard	Also referred to as MMC. Compact memory card, 32 mm long × 24 mm wide × 1.4 mm thick
	MultiMediaCard Association	Also referred to as MMCA. This association promotes the widespread use of multimedia cards.
O	OSTA	Optical Storage Technology Association, which is an international industry organization that promotes recordable optical storage used to store computer data and images.
S	SCSI	Small Computer System Interface: A standard for connecting computer and peripheral devices. Frequently notated by prefixing or suffixing the number that indicates the data transfer rate, and First, Ultra, Wide, etc., to SCSI.
	SDA	See SD Card Association.
	SD Card Association	Also referred to as SDA. This organization promotes the popularization of SD memory card.
	SDMI	Secure Digital Music Initiative: This conference was established by hardware makers, the Recording Industry Association of America (RIAA) and music industry companies, to protect copyrights of musical compositions.
	SD Memory Card	Formally named Secure Digital Memory Card. This compact memory card, 32 mm long × 24 mm wide × 2.1 mm thick, is equipped with an advanced copyright protection function.
	SecureMMC	See Secure MultiMediaCard.
	Secure MultiMediaCard	Also referred to as SecureMMC. This compact memory card has multimedia card specifications, to which an advanced copyright protection function is added. Unusable on the DVD video camera/recorder.
	Software disc-Protect	This function writes the protect information to DVD-RAM disc to prevent accidental erasure. Software Disc-Protect is included in DVD-RAM disc specifications defined by DVD Forum.
	STN LCD	Super-Twisted Nematic Liquid Crystal Display: This type of color LCD is inferior to TFT LCD in coloring, view angle, etc.
T	TFT LCD	Thin Film Transistor Liquid Crystal Display: This type of color LCD features clear display, high contrast, wide view angle, etc.
U	UDF	Universal Disc Format, which is a file format of recordable disc defined by OSTA. The version 2.01 UDF is used on DVD video camera/recorder.
	USB	Universal Serial Bus: Standard of serial interface that connects PC and peripheral devices. Two versions - USB1.1 and USB2.0, with different data transfer rates - exist at present.
V	VBR	Stands for Variable Bit Rate: This format of coding audio and video varies the amount of data depending on the subject image.

3-1 Description of Mechanism

(1) Lock mechanism of disc loading block (lock unit)

Since the structure of disc loading block in DZ-MV350E is different from that of the lock unit in previous models, it will not open unless a power supply (battery or AC adapter/charger) is connected.

The lock arm in DZ-MV350E lock unit is driven by the DC motor controlled by a microprocessor (see Fig. 3-1-1).

The lock arm is usually in locked status: When the DISC EJECT button is pressed, the DC motor drives the lock arm in the release direction.
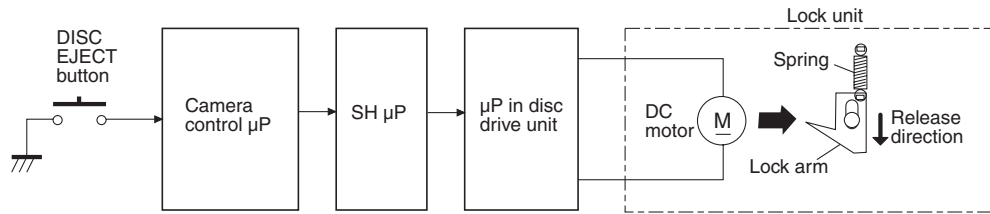
Fig. 3-1-1 Lock Unit in DZ-MV350E

The lock arm in lock units of previous models is mechanically coupled with the DISC EJECT button via a solenoid[*1], except when disc is being accessed (see Fig. 3-1-2).

The solenoid is controlled by the current supplied from camera control microprocessor.

While the disc is being accessed, the camera control microprocessor outputs the current and controls the solenoid to release the coupling between DISC EJECT button and lock arm, so that the disc loading block does not open.

If no power supply is connected, the camera control microprocessor will not operate, and the solenoid will not release the coupling.

*1: A device that converts electrical energy to mechanical energy, using the magnetic force that is generated when current flows to electromagnetic coil.
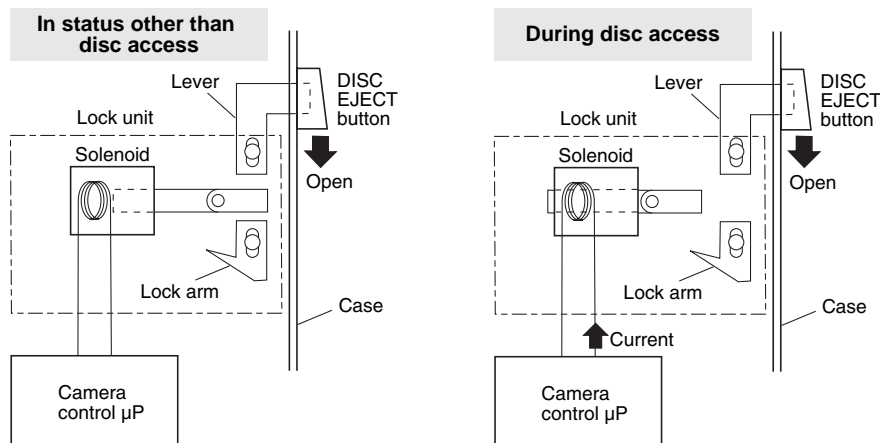
Fig. 3-1-2 Lock Unit on Previous Models

(2) Structure schematics

1) Disc cover (includes power switch, speaker and card slot)
2) Lock arm in lock unit
3) DC motor in lock unit
4) Lock unit
5) Disc drive unit
6) Lens cover
7) Hood
8) LCD case U
9) Front cover
10) FRT circuit board
11) Jack cover
12) R case
13) Hand strap
14) Lens unit[*1] (includes CCD and circuit board that incorporates CCD)
15) GYR circuit board[*1]
16) Accessory shoe
17) SHE circuit board[*1]
18) EVF unit
19) Eyecup
20) MAN circuit board[*1]
21) Rear cover (includes zoom, REC and disc eject switches)
22) L cover
23) L case
24) AEL circuit board[*1]
25) 2.5 LCD unit
26) LCD case B
27) LCD circuit board
28) Backlight

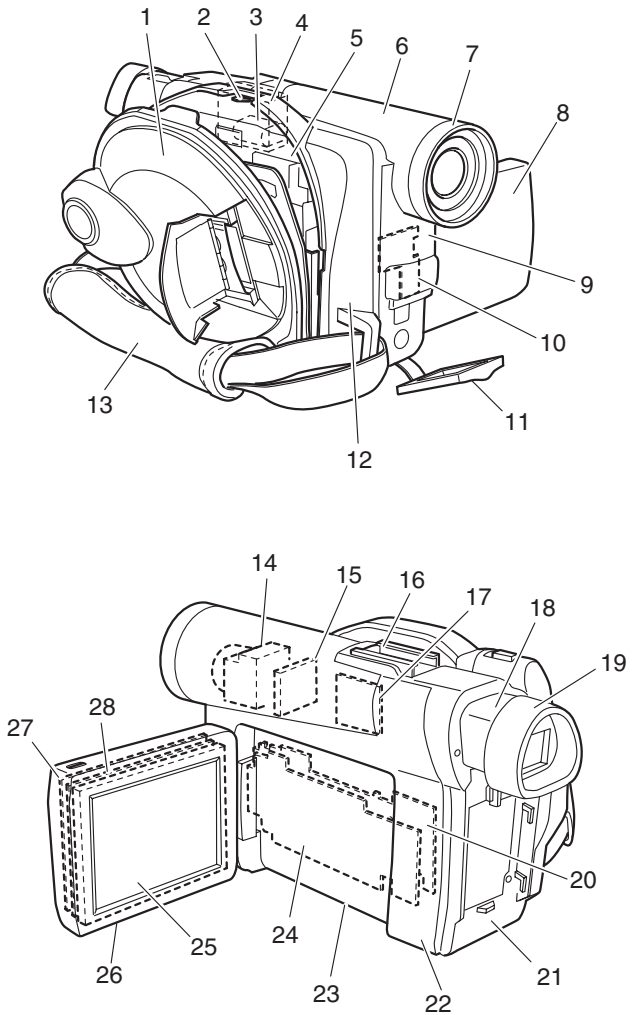 *1: These components are shown as if they were viewed from the L case, but actually they are assembled in the R case.

Fig. 3-1-3 Structure Schematics

3-2 Description of Newly Adopted Technology

3-2-1 Overview of SD memory card and MultiMediaCard
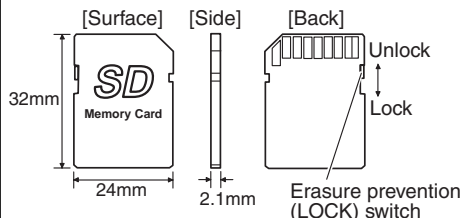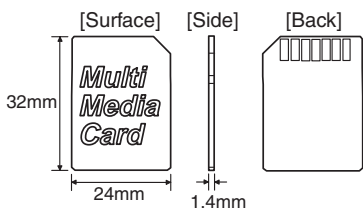
(1) SD memory card

The formal name is "Secure Digital Memory Card". The SD Card Association (SDA), founded in 2000, is promoting worldwide adoption of this compact memory card standard. At present, approximately 500 member companies all over the world, including Hitachi, participate in SDA.

(2) MultiMediaCard

The MMC Association (MMCA: MultiMediaCard Association), founded in 1998, is promoting worldwide adoption of this compact memory card standard. At present, approximately 100 member companies all over the world, including Hitachi, participate in MMC Association.
Since the standard of MultiMediaCard is almost identical to that of SD memory card, the MultiMediaCard can be used on some devices that conform to SD memory card and are now being marketed, including the DZ-MV350E.

(3) Specifications of SD memory card and MultiMediaCard

Item	SD memory card	MultiMediaCard
Dimensions	24 mm long × 32 mm wide × 2.1 mm thick	24 mm long × 32 mm wide × 1.4 mm thick
Weight	Approx. 2 g	Approx. 1.5 g
Number of terminals	9 (4 for data)	7 (1 for data)
Operating voltage	2.7-3.6 V	2.7-3.6 V
Current consumption[*1]	80 mA max.	80 mA max.
Maximum capacity[*1]	512 MB	128 MB
Copyright secure function	Provided[*2]	Not provided[*3]
Data write speed	2.0 MB/s (standard value)	1.6 MB/s (specification of Hitachi HB28B128MM2)
Erasure Prevention mechanism	Provided	Not provided
External view	[Surface] [Side] [Back] 32mm SD Memory Card 24mm 2.1mm Unlock Lock Erasure prevention (LOCK) switch	[Surface] [Side] [Back] 32mm Multi Media Card 24mm 1.4mm

*1: Values for cards on market as of March, 2003
*2: The copyright protection function conforming to SDMI copyright protection standard is equipped by use of the cross-certification technology (CPRM: Content Protection for Recordable Media).
*3: Unusable on the DZ-MV350E, but there is a card (standard) that is referred to as secure MultiMediaCard (SecureMMC) equipped with the copyright protection function.

3-2-2 Standards for photo recording on card

The DZ-MV350E records photos on SD memory card or MultiMediaCard, conforming to Exif and the DCF standard. The DZ-MV350E also supports DPOF to facilitate printing of photos recorded on SD memory card or MultiMediaCard.

(1) Exif (Exchangeable image file format)

Exif is a file format based on JPEG, and is used for recording photos on digital cameras.
Almost all devices that handle photos, such as digital cameras, use high-compression and high-quality JPEG: To apply JPEG, the basic photo technique, to devices, the file format, etc., used must be specified. To meet this requirement, Exif was established by JEIDA[1].
Exif has also been adopted for storage media other than SD memory card and MultiMediaCard.

(2) DCF (Design rule for Camera File system) standard

The DCF standard further strictly specifies the Exif specifications in order to enhance compatibility between various makers and models of digital cameras. It clearly defines the storage names of JPEG files and folders conforming to Exif, along with additional information, such as recording date, recording device, etc.
The widespread use of digital cameras has increased the need for direct exchange of images between devices, including playback of recorded images on another camera or cameras made by other companies, direct image output on printers, etc.: To meet this demand, the DCF standard was established by JEIDA[1]. The DCF standard can also be adapted to storage media other than SD memory card and MultiMediaCard.
Almost all digital cameras conform to the DCF standard, which makes it a de facto standard of digital camera.

  *1: JEIDA stands for Japan Electronic Industry Development Association. JEIDA merged with EIAJ (Electronic Industries Association of Japan), and the Japan Electronics and Information Technology Industries Association (JEITA) was formed.

(3) DPOF (Digital Print Order Format)

DPOF included in card navigation functions of DZ-MV350E allows user to record print information along with recorded photos, such as the selection of recorded photos to be printed and specification of number of prints, on SD memory card or MultiMediaCard.
The print information thus stored on card means user does not need to select scenes and specify the number of prints later at photo lab or on home-use printer, thereby facilitating printing.
The DPOF standard was jointly proposed by Cannon, Kodak, FUJIFILM and Matsushita in 1998, so that photos recorded on compact memory card could easily be output. DPOF also conforms to storage media other than SD memory card and MultiMediaCard, and is accepted by numerous companies, including Hitachi.

3-2-3 Software disc-protect function

The DZ-MV350E is equipped with a software disc-protect function instead of an erase-prevention mechanism: The erase-prevention mechanism is not provided with new round disc holder because of its structure.

The software disc-protect function writes the protect data to DVD-RAM disc to prevent data on it from being accidentally erased: It performs the same function as the write-protect tab of conventional disc cartridge, using software. Software disc-protect can repeatedly be set and released on one disc, in the same way as the mechanical write-protect tab.

The software disc-protect function is included in the DVD-RAM disc specifications defined by DVD Forum. Therefore, the disc-protect set on DZ-MV350E can be released or set again on devices equipped with the same function.

DVD video camera/recorders that use DVD-RAM disc packed in a cartridge are not equipped with the software disc-protect function, since a write-protect tab is provided on the cartridge. Therefore, if a disc for which software disc-protect has been set is put in a cartridge and the write-protect tab is released, the disc can be played back on those DVD video camera/recorders, but no recording or editing can be performed on them. To record or edit such discs, release the software disc-protect on DZ-MV350E or on another device equipped with the same function.

4 Troubleshooting

4-1 Procedure for Troubleshooting

Perform troubleshooting in the order shown in Fig. 4-1-1.
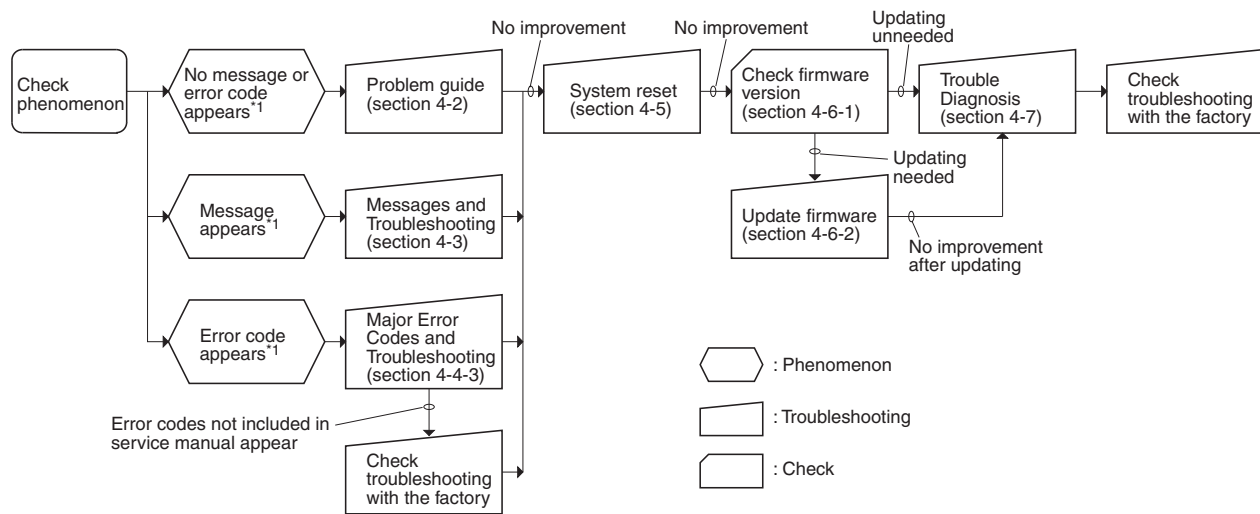
*1: Messages and error codes will appear on LCD monitor or in viewfinder.

Fig. 4-1-1 Troubleshooting Procedure

Note:

1) Before troubleshooting or servicing, be sure to obtain customer approval for the following:

 a) The image data stored on disc may be lost depending on the details and situation of fault (defect).

 b) The date/time and various settings, including video recording mode, designated by customer after purchase may in some cases be reset to the defaults before purchase (factory settings).

2) Take note of settings on received product, referring to "4-5 System Resetting/Resetting Camera Functions": The notes will be necessary not only for resetting, but for checking defects that occur under the particular setting conditions.

4-2 Problem Guide

Check the following before judging that DZ-MV350E is faulty.

Symptom	Cause and Correction
Power supplies	
Battery cannot be charged.	Is the DC power cord connected to AC adapter/charger? Unplug it. If the DC power cord is connected, the AC adapter/charger will not enter the charge status.
	Is the battery abnormally hot? Remove the battery from AC adapter/charger, leave it as is until it cools down, and then charge it again.
	Has the battery been unused for a long time? Remove the battery from AC adapter/charger, and then reattach it.
	Is the ambient temperature is too low or high? Always charge the battery at 10 - 30°C.
Battery weakens fast.	Are you using the DZ-MV350E where the temperature is very low? The DZ-MV350E can normally be used for 40 - 60 minutes with a fully charged battery (DZ- BP14S/BP14SW), but this time will be shorter at low temperatures. When using DZ-MV350E in a cold place, prepare extra batteries.
	Battery may be dead: Replace with a new one. The performance of battery will deteriorate if it is used for an extended period of time or frequently.
The CHARGE indicator on AC adapter/charger is blinking.	Is the ambient temperature is too low or high? Always charge the battery at 10 - 30°C.
	The battery may be over-discharged. Continue charging: The CHARGE indicator will change to a steady light, and the battery will be charged normally.
Power turns off immediately after being turned on.	Is battery charged? Charge it.
When power is turned on, the LCD screen will turn on and off.	
Power goes off unexpectedly.	Is Power Save specified "On"? The specifications state that the powered DZ-MV350E automatically turns off if it is left for as long as 5 minutes without performing recording or playback, with "Power Save: On" specified. Set the power switch to "POWER OFF", and then turn DZ-MV350E on again. To stop automatic power off, specify "Power Save: Off".
Power cannot be turned off.	Execute system reset (disconnect the battery or AC adapter/charger, and then use a fine tipped pen, etc. to hold down the RESET button for several seconds). Then connect a battery or AC adapter/charger and make sure the DZ-MV350E accepts operation. System reset will return the date/time and all items set using menu (except for LCD settings) to the defaults at the factory. After recovery, reset the date/time and each setting item as required.

Symptom	Cause and Correction
During recording	
Recording starts but stops immediately.	Does dirt or fingerprint adhere to disc, or is disc scratched? Clean the disc. If there is still no improvement, replace the disc. **Disc cleaning method:** Use soft cloth to clean from inner to outer circumference in axial direction. **[Never use solvent.]**
LCD screen is hard to see.	Has brightness of LCD screen been adjusted? Stop recording and adjust the brightness.
	Is DZ-MV350E being used outdoors? Use the viewfinder. When using LCD monitor, adjust angle so that LCD screen is not exposed to direct sunlight.
Black dots or red, blue or green dots always lit appear on LCD screen or in Viewfinder.	The panels used for LCD monitor and viewfinder of DZ-MV350E are produced using highly precise technology. However, 0.01% or less of total pixels may not light (black dots) or may remain lit (red, blue, green dots). (The effective amount of pixels on LCD panel is 99.99% or more.) This shows the limitations of the current technology, and does not indicate a fault that will interfere with the operation of LCD panel or operation of DZ-MV350E.
Focus is not correct.	Is it difficult to use auto-focus with the subject? Focus manually.
	Does "MF" appear? The DZ-MV350E is set to manual focus. Focus the subject manually, or release manual focus.
	Is the diopter control of viewfinder correctly adjusted? Adjust the diopter control.
	In cases other than the above, set the power switch to "POWER OFF", and then reset it to the original position.
During playback	
Recognition of disc is not complete.	Does dirt or fingerprint adhere to disc, or is disc scratched? Clean the disc.
Pressing the playback button will not start playback.	Was the image recorded on a device other than DZ-MV350E? Playback of image recorded on devices other than DZ-MV350E may be impossible.
	Has scene been edited on a device other than DZ-MV350E? If a scene that was recorded on DZ-MV350E is edited on a device other than DZ-MV350E, playback may not be possible on DZ-MV350E.
No playback image appears on TV screen.	Is TV input selector set correctly? If the TV has multiple video input jacks, check to see whether the correct input jack was selected. If DZ-MV350E is connected to VCR, set the input selector of VCR to "external input (LINE)".
	Is DZ-MV350E connected to TV correctly? Check the connections.
Playback picture is momentarily interrupted.	Does dirt or fingerprint adhere to disc, or is disc scratched? Clean the disc.
No sound.	Is the TV volume control set correctly? Adjust volume control on TV.

Symptom	Cause and Correction
When connected to PC (when using provided software)	
No drive icon appears on PC.	Is DZ-MV350E turned on? Connect the AC adapter/charger and set the power switch to a position other than "POWER OFF".
	Is PC connection cable properly plugged in? Plug the PC connection cable connector completely into DZ-MV350E.
	Turn PC off and unplug the PC connection cable: Then restart PC and use the PC connection cable to connect the DZ-MV350E and PC.
	The USB device driver installed in PC is not properly recognized. Restart PC. If the drive icon still does not appear, use "Refresh driver" in Device Manager to reinstall the USB device driver. If a yellow "!" mark is attached to some device in Windows Device Manager, uninstall the USB device driver, and then reinstall it.
A fatal exception 0A error occurs while installing USB driver in Windows 2000 Professional	It is recommended that you install Windows 2000 Service Pack 3 or later.
DISC EJECT button does not work when DZ-MV350E is connected to PC.	The DISC EJECT button is invalid while DZ-MV350E is connected to PC. Start Windows Explorer, right-click the drive icon corresponding to DZ-MV350E, and then click "Eject".
Disc cannot be ejected even by operating Windows Explorer or applications.	Was DVD-MovieAlbbumSE (software provided with DZ-MV350E) started? Terminate DVD-MovieAlbbumSE.
When the time stamp of file on DVD-RAM disc is viewed on PC, it is different from the actual recording date/time.	Since the file system of DZ-MV350E is operated on Greenwich Mean Time (GMT), the time stamp will be GMT. However, since the time lag information is recorded on disc, date/time display on DZ-MV350E playback screen will be the actual recording date/time.
Error occurs in playback of DZ-MV350E on PC	If error occurs with USB connection, the transfer rate is not sufficient. It is recommended that you use a USB terminal conforming to USB2.0 when connecting the DVD video camera/recorder.
Error occurs during writing to DVD-R disc.	The temperature of DZ-MV350E is too high due to continuous operation. Disconnect the DZ-MV350E from PC, remove the disc from DZ-MV350E, set the power switch to "POWER OFF", and then leave it as is until the temperature decreases. After checking that the temperature has gone down, use a brand-new disc and restart operation.
Transfer of images stops.	The USB terminal of PC may be faulty. Connect the DZ-MV350E to another USB terminal of PC. If your PC is desktop type, it is recommended that you use USB terminal on the back of PC. If you are using USB2.0 extended card, it is also recommended that you install the newest version driver provided each USB2.0 card maker.
DVD-RAM/R/RW drive built into PC cannot be used after the provided software has been installed.	This problem may be solved if the software related to DVD-RAM/R/RW built into PC is upgraded, or if the UDF driver is uninstalled. However, if the OS of PC is Windows 98 Second Edition/Me/2000 Professional, uninstalling the UDF driver will make it impossible for the photos recorded on DVD-RAM disc in DZ-MV350E to be read by the PC.
Video is not recognized by software in PC.	Is the power switch of DZ-MV350E set to "VIDEO" or "PHOTO (disc)"? Set it to "VIDEO" or "PHOTO (disc).

Symptom	Cause and Correction
DVD-R disc cannot be played back on DVD-MovieAlbumSE	DVD-MovieAlbumSE is exclusively for DVD-RAM disc. When playing back DVD-R disc on PC, use generally available DVD-R disc playback software.
Error appears when starting DVD-MovieAlbumSE	Make sure that your PC display adapter (video card) conforms to DirectX8.1
Video written to hard disk of PC using DVD-MovieAlbumSE copy tool cannot be edited.	The specifications state that DVD-MovieAlbumSE complies only with images recorded on DVD-RAM disc: It cannot edit video (DVD-VR) data stored on hard disk of PC. To edit image data stored on hard disk, copy the data to DVD-RAM disc and then edit it.
When DVD-MovieAlbumSE software provided with DZ-MV350E is started, "Disc in Drive X: cannot be used on MovieAlbum" appears (a letter showing the drive where disc is loaded appears in X).	Is a disc other than DVD-RAM loaded? Load a DVD-RAM disc. DVD-MovieAlbumSE is exclusively for DVD-RAM disc. Use the following procedure to select the drive where DVD-RAM disc is loaded. 1) Click the "Preference" button in the dialog box. 2) Click "Preference". 3) Click "Device Setting". 4) Choose the drive where DVD-RAM disc is loaded in the "Drive Select" column, and then click "OK".
An image that should have been recorded does not appear when DVD-MovieAlbumSE is started.	Use the following procedure to select the drive where DVD-RAM disc is loaded. 1) Click the "Preference" button at the top right of DVD-MovieAlbumSE screen. 2) Click "Preference". 3) Click "Device Setting". 4) Choose the drive where DVD-RAM disc is loaded in the "Drive Select" column, and then click "OK".
Executing "Export" on DVD-MovieAlbumSE will interrupt reading midway	Do not choose "Simple Export": If you do, reading will stop midway.
When executing "Export" on DVD-MovieAlbumSE, it will take time to read	a) If photo is included in the range of "export", it may take more time because data must be re-encoded and read. b) If "Divide by Maker" is not chosen, it may take some time because data will be read while being re-encoded.
"Hardware Removal" results in error	Making sure the ACCESS/PC indicator on DZ-MV350E goes out, turn the PC off, and then unplug the PC connection cable from DZ-MV350E. If your PC uses Windows 2000 Professional, the problem may be solvend it you install Windows 2000 Service Pack 3 or later.
"USBNTMAP.SYS not found" appears while installing USB driver	You have designated a folder which is different from that for Windows when installing USB driver: Designate the correct folder.
No USB HS (high speed) connection even when USB2.0 card is used	Make sure that you have already installed the driver provided with the USB2.0 card. You will need to install the driver provided by USB2.0 card maker in order to operate the USB2.0 card at HS (high speed).
"DISC ERROR" appears when releasing write-protect	A disc that was write-protected using the write-protect setting tool (WPTOOL) equipped with the UDF driver on the CD-ROM provided with this DVD video camera/recorder cannot be released on this DVD video camera/recorder as is. Use the write-protect setting tool on PC to release the write-protect.
DZ-MV350E vibrates.	This does not indicate a fault.
Slight sound is heard from DZ-MV350E.	These vibrations or sound are generated when the disc drive unit is operating.

Symptom	Cause and Correction
	Miscellaneous
Power does not come on, or no operation occurs by pressing button.	Execute system reset (disconnect the battery or AC adapter/charger, and then use a fine tipped pen, etc. to hold down the RESET button for several seconds). Then connect a battery or AC adapter/charger and make sure the DZ-MV350E accepts operation. System reset will return the date/time and all items set using menu (except for LCD settings) to the defaults at the factory. After recovery, reset the date/time and each setting item as required.
	Has DZ-MV350E been subjected to impact? The DZ-MV350E could be damaged.
The date and time are incorrect.	Has the DZ-MV350E been left unused for a long period of time? The internal backup battery may be discharged: Charge it. (Charge procedure: Connect the AC adapter/charger to the DZ-MV350E and AC outlet, set the power switch on DZ-MV350E to "POWER OFF", and then leave them for at least 24 hours.)
No scene can be deleted.	Is the cursor placed on scene to be deleted? Even if desired scenes are selected using yellow cursor, if there are the selected scenes (in red frame), those scenes in red frame will be deleted. Check the color of cursor and bar graph on the thumbnail display screen.
Disc cannot be removed.	Is battery or AC adapter/charger (power supply) connected? With the DZ-MV350E, a disc cannot be removed unless a power supply is connected.
	Has disc rotation stopped? Making sure the disc stops, and then restart operation. Disc cannot be removed until rotation has stopped.
	Did you disconnect the battery or AC adapter/charger (power supply) while the disc was being accessed? Reconnect power supply, set the power switch to "VIDEO", and then remove the disc after the sound showing the disc lock has been released is heard. If the disc still cannot be removed, the DZ-MV350E is faulty: Refer to "4-8 Procedure for Removing Disc from Faulty DZ-MV350E".
DZ-MV350E cannot be operated from remote control.	Is the remote control pointed at the infrared receiver on DZ-MV350E? Point it at the infrared receiver on DZ-MV350E.
	Is the infrared receiver on DZ-MV350E exposed to direct sunlight or strong fluorescent light? The remote control cannot operate DZ-MV350E when strong light strikes the infrared receiver. Adjust the position or angle of DZ-MV350E.
	Is there a battery in the remote control? Also check the polarities of battery. Replace the battery if necessary.
	Is DZ-MV350E powered? Turn it on.

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Symptom	Cause and Correction
Disc cover cannot be closed.	Is disc correctly loaded?
	Remove the disc and then reload it.
	Is round DVD holder being used?
	A bare disc that is not in round DVD holder, or is in a square cartridge or caddy, cannot be used. Put disc in the round DVD holder.
	Is round DVD holder inserted in the proper orientation?
	Remove the round DVD holder, make sure of the orientation, and then reinsert it.
Operating sound is heard cyclically.	This sound is heard because the disc is cyclically operated; it does not indicate a fault.

4-3 Messages and Troubleshooting

Some messages may appear on the LCD screen or in the viewfinder during operation.

If a message appears, refer to the following table and perform troubleshooting according to the message.

Messages divided by broken lines will automatically appear in sequence from the upper row each time the playback/pause button is pressed (press the center of joystick).

Message	Cause/condition for message to appear	Troubleshooting
Battery is almost empty. Replace it.	Appears if the battery is discharged.	Replace with a charged battery, or use the AC adapter/charger to power DZ-MV350E.
Cannot combine scene.	Appears if an attempt is made to combine unconnected scenes: The specifications state that combining of only multiple scenes is possible.	Stop trying to combine scenes, or create a play list containing the scenes to be combined, and combine them on the play list.
Cannot combine. Deselect multiple scenes.	Appears if an attempt is made to combine scenes when a photo was selected: The specification state that combining of only video scenes is possible.	Select only video scenes, or stop trying to combine scenes.
Cannot combine. Select PHOTO scenes.	Appears when combining one scene was attempted.	Select multiple scenes and then combine them.
Cannot delete scenes.	Appears when user performed deletion at the upper limit of 999 scenes registered. *1	Combine divided scenes, and then delete if necessary.*2
Cannot execute. Unselect multiple scenes.	Appears if an attempt is made to select multiple scenes for division: The specifications state that dividing multiple scenes is impossible.	Divide scenes one by one.
Cannot execute. Change display category to All.	Appears when combining or moving scenes was instructed with "Category: VIDEO or PHOTO" specified.	Specify "Category: All", and then operate DZ-MV350E again.
Cannot move scene in program mode. Create new PlayList.	Appears if an attempt is made to move scenes in program.	Create a play list, and then move scenes on the play list.

*1: the DVD video recording format defines the maximum number of entry points as 999: Since one entry point is allocated to one scene, the maximum number of scenes recordable on disc with DZ-MV350E is 999.

*2: If recording is continued without editing, one scene will comprise one cell for each entry point. When scenes are combined, only the number of entry points will decrease (only the entry point is deleted); the number of cells will not decrease. Assume, for example, that the number of cells before scenes are combined is 999, which is the upper limit defined by the DVD video recording format. If a scene comprising one cell is divided at two points and the scene between the divided scenes needs to be deleted, the cell must be further divided in order to delete. However, since the number of cells has reached the upper limit in this case, the cell cannot be divided and the scene cannot be deleted.

Message	Cause/condition for message to appear	Troubleshooting
Cannot record photos.	Appears if an attempt is made to record photos on DVD-R disc: The specifications state that no photo is recordable on DVD-R disc.	Use a DVD-RAM disc or card when recording photos.
Cannot replace thumbnail on PHOTO scenes.	Appears when a photo thumbnail was selected for change in scene editing menu: The specifications stipulate that the thumbnail of photo cannot be changed.	Select a video to change the thumbnail.
CARD ALMOST FULL	Appears when the remaining recordable number of photos is less than 10 during recording.	Prepare another card, or delete unnecessary photos.
Card error has occurred. Format the card now?	Appears when a card initialized on PC, etc., or a card whose initialization was interrupted before, is loaded.	Choose "YES" and designate it to initialize the card (deleting all recorded data).
Card error has occurred. Formatting is not complete.	Appears when a damaged card is initialized.	Replace the card.
Card error has occurred. Keep card inside & restart.	Appears when no photo could be recorded on card normally.	Set the power switch to "POWER OFF", and after several seconds, set it to "[CARD]PHOTO".
		Initialize the card (deleting all recorded data).
Card error.	Appears when the card cannot be recognized because its terminals are dirty.	Use a dry cloth to clean the card terminals.
	Also appears when data other than photos is recorded on card.	Replace the card.
Card full.	Appears when the recording capacity of card has reached the limit during recording.	Replace the card, or delete unnecessary photos .
	Appears when a card whose remaining recording capacity is small, and on which no photo can be recorded, is loaded.	Replace the card, or delete unnecessary photos.
Card full. Cannot execute.	Appears when the remaining capacity of card has reached the recordable limit.	Replace the card, or delete unnecessary photos.
Card is not formatted. Format the card now. YES NO	Appears when an unformatted card or a card formatted on PC was loaded.	Choose "YES" and designate it when formatting card (deleting all recorded data).
CHECK DISC	Appears when disc that cannot be used on the DZ-MV350E, or logically damaged disc (warped or distorted), was loaded.	Check the type of disc, and for scratch or distortion on disc: If the disc is scratched or distorted, replace it.
	If the type of disc is acceptable, and there is no scratch or distortion, the disc may be defective.	Replace the disc.

Message	Cause/condition for message to appear	Troubleshooting
Control Information Error.	Appears if mismatch has occurred between the recorded video and the scene information because editing was performed near the limit of disc storage capacity on a device other than DZ-MV350E; it also appears if the control information file was operated.	Update the control information. (Start Disc Navigation, press the MENU button, and then execute "Update Control Info." in the "Disc" menu.
	Also appears when reading or writing from/to recorded file cannot be performed because the disc is dirty.	Clean the disc, or replace it. **Disc cleaning method:** Use soft cloth to clean from inner to outer circumference in axial direction. **[Never use solvent.]**
Data error in a part of image file. Repair disc now? 　　YES　NO	Appears if writing to file cannot be completed normally because power was turned off by mistake during video recording or editing, and an abnormality in part of the file is recognized.	Choose "YES" and designate partial repair (automatic repair) of video file. Choosing "NO" will display a message for verifying initialization.[*3]
	Also appears when condensation occurs on lens or drive of DZ-MV350E. Condensation will occur when the DZ-MV350E is moved from a cold place to a warm place.	Do not execute repair, but set the power switch to "POWER OFF" with the disc loaded, and then leave the DZ-MV350E in a dry place until condensation disappears (usually 1-2 hours).
Data error in all image file. Repair all data now? 　　YES　NO	Appears if writing to file cannot be completed normally because power was turned off by mistake during video recording or editing, and it is recognized that the video file must be totally repaired.	Choose "YES" and designate total repair (automatic repair) of video file. Choosing "NO" will display a message for verifying initialization.[*3]
	Also appears when condensation occurs on lens or drive of DZ-MV350E. Condensation will occur when the DZ-MV350E is moved form a cold place to a warm place.	Do not execute repair, but set the power switch to "POWER OFF" with the disc loaded, and then leave the DZ-MV350E in a dry place until condensation disappears (usually 1-2 hours).

*3: Take care with the following when repairing video file:
　a) If the disc is removed while it is being recognized, the repair function of video file will be invalid.
　b) If the timing when power is turned off is inappropriate, normal repair may be impossible.
　c) If the disc has data that was recorded on a device other than DZ-MV350E, normal repair may be impossible.
　d) The repaired data may be different from the original recorded content because of partial deletion of a defective portion.
　e) The repaired data (only corrected portion in case of partial repair) will lose the original date/time information because the information for date/time when repair was executed will be added.
　f) If "all repair" is executed, repair will be made in the order of all videos and all photos, and the time-sequential relationship of recorded contents may be lost.

Message	Cause/condition for message to appear	Troubleshooting
DISC ACCESS	This message appears during normal operation process, when DZ-MV350E checks whether a proper disc has been loaded or not. It is displayed for a longer time period when the date has changed.	Operate DZ-MV350E after the message disappears.
	This message appears during normal operation process, when the recorded images are being stored on disc.	Operate DZ-MV350E after the message disappears.
DISC ALMOST FULL	Appears if the remaining video recordable time on disc is less than 10 minutes, or the remaining number of recordable photos is less than 10.	Delete unnecessary scenes, or replace the disc.
Disc error	Appears when the disc has been edited on a device other than DZ-MV350E, and mismatch has occurred in recorded data.	Format the disc (deleting all recorded data), or replace the disc.
	Also appears when reading or writing from/to recorded file cannot be performed because the disc is dirty.	Clean the disc, or replace it. [Refer to page 4-10]
Disc error has occurred. Finalizing is not complete.	Appears when the disc could not be finalized because it was dirty.	Clean the disc, or replace it. [Refer to page 4-10]
	Appears if accident, such as power off, has occurred during finalizing.	Set the power switch to "POWER OFF" and reconnect the AC adapter/charger; then set the power switch to "VIDEO" and start finalizing again. Or press the DISC EJECT button, reload the disc, and then execute finalizing.
	If the message still appears even when the disc has been cleaned and finalized again and again, the disc may be defective.	Replace the disc.
Disc error has occurred. Format the disc now? YES NO	Appears when a DVD-RAM disc initialized on PC, etc., or a card whose initialization was suspended before, is loaded.	Choose "YES" and designate it to initialize the DVD-RAM disc (deleting all recorded data).
Disc error has occurred. Formatting is not complete.	Appears when the disc could not be normally formatted because it was dirty.	Clean the disc, or replace it. [Refer to page 4-10]
	Also appears when a warped or distorted disc was loaded, or a logically damaged disc whose formatting was suspended is loaded.	Replace the disc.
Disc error has occurred. Keep disc inside & restart.	Appears if a problem has occurred during editing of video file.	Exit the Disc Navigation function and set the power switch to "POWER OFF" with the disc loaded; then reconnect the AC adapter/charger and set the power switch to "VIDEO" or "PHOTO (disc)". (The DZ-MV350E will automatically repair the video file.)

Message	Cause/condition for message to appear	Troubleshooting
Disc full. Cannot execute.	Appears if the recording capacity of disc has reached the limit during editing of video file.	Delete unnecessary scenes, or replace the disc.
Disc has no data.	Appears when the MANU button or playback button was pressed with no scene recorded.	Operate DZ-MV350E after the message disappears.
Disc has no PlayList.	Appears if switching of play list is selected with no play list registered.	Operate DZ-MV350E after the message disappears.
Disc includes protected scenes. Delete scenes? YES NO	Appears if the loaded disc has a program (scene) that is write-protected by the software write-protect function, which is effective in program units. Although the DZ-MV350E is equipped with a software disc-protect function that is effective for disc units, it does not comply with software write-protect for program units. (The DVD Forum defines two types of software protect for DVD-RAM disc: disc units and program units.)	Release the write-protect using the device that has the software write-protect function for program units, or choose "YES" and designate it to delete the scenes.
Disc is full. Cannot add control info.	Appears if the number of scenes on play list exceeds the upper limit (999) while control information is being added. [Refer to *1 page 4-8]	Delete any unnecessary scenes, or combine several scenes, and then operate the DZ-MV350E.
Disc is not formatted. Format the disc now? YES NO	Appears when an unformatted DVD-RAM disc or one initialized on PC is loaded.	When initializing it (deleting all recorded data), choose "YES" and designate it.
	Also appears if user rejects partial repair or total repair of video file.	Choose "NO" and designate partial repair or total repair. When initializing it (deleting all recorded data), choose "YES" and designate it.
Disc is not formatted. If it formats, it becomes possible to use for camera. However, when you record from PC connection terminal, please do not format. Format the disc now? YES NO	Appears when a brand-new DVD-R disc was loaded.	When recording on DZ-MV350E, choose "YES" and designate it. When recording video edited on PC connected via the PC connection terminal, choose "NO" and designate it.*4

*4: The purpose of formatting DVD-R disc on DZ-MV350E is to write to disc a program exclusively for camera recording that is necessary to record images shot by camera in real time (increasing the response from disc). When recording images that were edited using PC on DVD-R disc via the PC connection terminal, do not format the disc: The program used exclusively for camera recording will disable normal recording.

Message	Cause/condition for message to appear	Troubleshooting
Disc overheat. Please retry later.	Appears when the temperature inside DZ-MV350E, or the temperature of disc, is too high, and normal operation cannot be executed.	Set the power switch to "POWER OFF" with the disc loaded, and then leave the DZ-MV350E in a well-ventilated place until the inside temperature decreases.
DPOF scenes over limit. Cannot set DPOF scenes.	Appears when the number of settable scenes for DPOF has exceeded 999.	Release unnecessary DOPF setting on photos when newly setting DPOF.
END OF DISC	Appears if the disc recordable capacity has reached the limit during recording.	Replace the disc.
End scene cannot be divided.	Appears when the last image of scene was selected to divide the scene: The specifications state that dividing a scene at its end is not possible.	Stop trying to divide a scene.
Error has occurred. Error code No. ×××× Please read the manual. (4-digit alpha-numerals showing the code of trouble will appear in ××××.)	Appears if the self-diagnosis function of DZ-MV350E has detected a serious problem when power was turned on, or the same trouble occurred three consecutive times in modes other than recording.	Take note of the 4-digit alpha-numerals in ××××, and refer to "4-4 Self-Diagnosis Function and Remedy".
Error has occurred. Please reinsert a disc.	Appears if, when power was turned on, the self-diagnosis function of DZ-MV350E detected a slight trouble that can be fixed: See "4-4 Self-Diagnosis Function and Troubleshooting" for details.	Set the power switch to "POWER OFF", press the DISC EJECT button, and then reinsert the disc. After that, set the power switch to "VIDEO" or "PHOTO (disc)".
Error has occurred. Please restart.	Appears if, when power was turned on, the self-diagnosis function of DZ-MV350E detected a slight trouble that can be fixed by turning power on again: See "4-4 Self-Diagnosis Function and Troubleshooting" for details.	Set the power switch to "POWER OFF", reconnect the AC adapter/charger or battery, and then set the power switch to "VIDEO" or "PHOTO (disc)".
Error occurred. Please replace disc of format disc	Appears if repair has failed with DVD-RAM disc after message "Data error in all image file. Repair all data now?" or "Found error in image file. Repair data now?" appeared.	Initialize the disc (deleting all recorded data), or replace the disc.
Error occurred. Please replace disc.	Appears if repair has failed with DVD-R disc after message "Data error in all image file. Repair all data now?" or "Found error in image file. Repair data now?" appeared.	Replace the disc.
ERROR ×××× (4-digit alpha-numerals showing the code of trouble will appear in ××××.)	Appears if the self-diagnosis function in DZ-MV350E detects a serious problem during recording, or when the same trouble occurs three times consecutively during recording.	Take note of the 4-digit alpha-numerals in ××××, and refer to "4-4 Self-Diagnosis Function and Troubelshooting".

Message	Cause/condition for message to appear	Troubleshooting
Finalize may not be complete. Finalize again now? YES NO	Appears if accident, such as power off, occurred during finalizing, and then power was turned on again or disc was reloaded.	Choose "YES" and designate it to finalize the disc.
Found error in image file. Repair disc now? YES NO	Appears if repair has failed after message "Data error in a part of image file. Repair disc now?" appeared.	Choose "YES" and designate total repair (automatic repair) of video file. Choosing "NO" will display a message for verifying initialization. [Refer to *3 on page 4-10]
In DVD-R Disc, Video mode of the disc recorded once cannot be changed.	Appears if an attempt is made to change the Video recording mode of a recorded DVD-R disc. Once even one scene is recorded on a DVD-R disc which has been initialized, the originally designated Video recording mode is specified to be maintained until the final recording on the disc.	Stop trying to change the Video recording mode, or replace the disc.
	Also appears after the DVD-R disc has been initialized.	Operate DZ-MV350E after the message disappears.
It is unrecordable on this card.	Appears when a card other than SD memory card or MultiMediaCard was loaded.	Insert an SD memory card or MultiMediaCard.
JPEG file related to scenes are not found.	Appears when an attempt is made to copy photos on disc to card, when photo (JPEG) file to be copied is not stored on disc. When DZ-MV350E records a photo on disc, two photo files will be stored on disc - a photo (conforming to DVD video recording format) file to be displayed on DZ-MV350E, and a photo (JPEG) file for storage that is linked to the photo for display. This message will appear when only the photo file for storage has been deleted on PC, etc.	Copy photos to card via PC. The photo (JPEG) file for storage is stored in DCIM\100HPNX1 folder.
No card	Appears when no card is loaded.	Insert a card.
No card. Please insert card.	Appears when recording photos on card was attempted with no card loaded.	Insert a card.
NO DISC	Appears if no disc is loaded.	Load a disc
	If the message appears even when a disc is loaded, condensation might have occurred on lens or drive of DZ-MV350E.	Set the power switch to "POWER OFF" with the disc loaded, and then leave the DZ-MV350E in a dry place until condensation disappears (usually 1-2 hours).

Message	Cause/condition for message to appear	Troubleshooting
No more scenes. Play List was deleted.	Appears during user operation; all recorded scenes have been deleted and cleared. The specifications stipulate that a play list with no scene on it cannot be held: If all registered scenes have been deleted, the play list will also be deleted.	Operate DZ-MV350E after the message disappears.
Play Lists over limit.	Appears if an attempt is made to create a new play list or edit play list after the number of registered play lists has reached the upper limit (99) that is defined by the DVD video recording format.	Delete unnecessary scenes before creating a new play list or editing play list.
Same scenes on PlayList will be deleted. Delete scenes? YES NO	This message appears during user operation, if even one play list has been created during scene deletion. This message does not appear when a scene is deleted from play list.	Choose "YES" and designate it to delete selected scenes.
Scene without control info. Update control information? YES NO	Appears when Disc navigation is started with a disc that has a scene whose thumbnail cannot be displayed: A scene without thumbnail is produced because no entry point was attached to the start of program or play list when the disc was edited on a device other than DZ-MV350E, or scenes in multiple programs are combined.	Choose "YES" and designate it. (A thumbnail will be automatically produced if it is necessary, after Disc Navigation is started.)
Scenes over limit. Cannot add scenes.	Appears if an attempt is made to register a new scene in play list, with the specified 999 upper limit scenes registered. [Refer to *1 page 4-8]	Delete unnecessary scenes from play list before adding a new scene to it.
Scenes over limit. Cannot divide scenes.	Appears if an attempt is made to divide a scene with the specified 999 upper limit scenes registered, or the number of scenes will exceed 999 with division. [Refer to *1 page 4-8]	Delete unnecessary scenes before dividing a scene.
Scenes over limit. Cannot move scenes.	Appears if an attempt is made to move a scene at the upper limit of 999 scenes registered, or the number of scenes will exceed 999 by moving a scene. [Refer to *1 page 4-8]	Delete unnecessary scenes before moving scenes.
Stop processing.	This message appears during operation process. It will appear when user interrupted any process by pressing the stop/cancel button when processing multiple scenes, etc.	Operate DZ-MV350E after the message disappears.

Message	Cause/condition for message to appear	Troubleshooting
DPOF is not set to scene	Appears if "Slide Show: DPOF" is specified when a card for which DPOF has not been set is loaded.	Specify "Slide Show: All", or do not try slide show.
There was no scene which can be deleted.	Appears when only multiple locked scenes were selected using the Disc Navigation function, and deleting them was attempted.	Use the Disc Navigation function to unlock the scenes, and then restart operation.
This disc cannot be used. Please replace disc.	Appears when a type of disc that cannot be used on DZ-MV350E was loaded.	Check the type of disc and insert a disc usable on DZ-MV350E.
This disc is recorded by the NTSC system. Please replace disc.	Appears when a disc recorded in the NTSC system was loaded: The DZ-MV350E is exclusively for the PAL system and does not comply with the NTSC system.	Use a disc recorded in the PAL system.
Top scenes cannot be divided.	Appears when the first image of scene was selected to divide the scene: The specifications state that dividing a scene at its top is not possible.	Stop trying to divide a scene.
UNFORMAT DISC	Appears when an unformatted or logically damaged disc was loaded.	Format the disc (deleting all recorded data), or replace the disc.
	Also appears when a dirty disc was loaded.	Clean the disc, or replace it. [Refer to page 4-10]
	If the message appears when a normal, formatted disc has been loaded, condensation might have occurred on the lens or drive of DZ-MV350E. Condensation will occur when the DZ-MV350E is moved from a cold place to a warm place.	Set the power switch to "POWER OFF" with the disc loaded, and then leave the DZ-MV350E in a dry place until condensation disappears (usually 1-2 hours).
Use AC adapter/charger.	Appears if a battery is used when finalizing a DVD-R disc. The specifications state that DVD-R disc can be finalized only when the AC adapter/charger powers the DZ-MV350E.	Terminate the Disc Navigation function, set the power switch to "POWER OFF" with the disc loaded, remove the battery, and then connect the AC adapter/charger: Finalize the disc again.
Use AC adapter/charger. Turn off power.	Appears if a battery is used when repairing video files. The specifications state that video files can be repaired only when the AC adapter/charger powers the DZ-MV350E.	Set the power switch to "POWER OFF" with the disc loaded, remove the battery, and then connect the AC adapter/charger. [Refer to *3 page 4-10]
VIDEO scene cannot be copied to card.	Appears if an attempt is made to copy video to card. The specifications state that no video is unrecordable on card.	Stop trying to copy a video, or select photos and execute copy.

Message	Cause/condition for message to appear	Troubleshooting
Write protected. Check disc.	Appears if a DVD-RAM disc that was write-protected for disc units by software disc-protect function is loaded, or if an attempt is made to record on write-protected disc.	Release the software disc-protect.
Write-protected. Check card.	Appears when an SD memory card whose erasure prevention switch was locked is loaded.	Unlock the erasure prevention switch of SD memory card.

Note:

The listed messages are subject to change without notice for improvement of performance.

4-4 Self-Diagnosis Function and Troubleshooting

Restriction:
The information included in this section is exclusively for service personnel. Do not disclose it to persons other than service engineers.

The DZ-MV350E is equipped with a self-diagnosis function: If it detects a problem when power is turned on or during operation, it will display a message, replace the content of problem with an error code (4-digit alphanumeric characters), and then store it in flash memory.

4-4-1 Message displayed by self-diagnosis function

There are two types of message displayed when the self-diagnosis function detects problems: messages for minor problems, and messages for serious problems.

Information:
The messages of self-diagnosis function will be displayed until the power switch is set to "POWER OFF" or the disc is removed, regardless of whether there is a minor or serious problem.

(1) Messages for minor problems (Figs. 4-4-1, 4-4-2)

These messages appear when troubleshooting is likely possible for the problem detected when power was turned on, following the procedure below.

◆ Procedure when message shown in Fig. 4-4-1 appears:
Set the power switch to "POWER OFF", reconnect the AC adapter/charger or battery, and then set the power switch to "VIDEO" or "PHOTO (disc)".

◆ Procedure when message shown in Fig. 4-4-2 appears:
Set the power switch to "POWER OFF", press the DISC EJECT button, and then reinsert the disc. After that, set the power switch to "VIDEO" or "PHOTO (disc)".

If the problem is handled by the procedure shown above, servicing is not necessary in almost all cases. However, if the DZ-MV350E cannot be restored from the problem or the same problem recurs, appropriate servicing will be required. The information on minor problems will be stored in flash memory as error codes (4-digit alphanumeric characters), whether or not the DZ-MV350E is restored from the problems. See "4-4-2 Error codes stored in flash memory" for how to display the stored error codes.

⚠ Error has occurred.
Please restart.

Fig. 4-4-1 Message for Minor Problem (1/2)

⚠ Error has occurred.
Please reinsert a disc.

Fig. 4-4-2 Message for Minor Problem (2/2)

(2) Messages for serious problems (Figs. 4-4-3, 4-4-4)

These messages appear when solving the problem detected when power is turned on or during operation is not likely by turning power on again or reloading the disc: Error codes (4-digit alphanumeric characters) will directly appear, and similar messages will appear if a problem from the same cause occurs three times consecutively during operation. If messages for serious problems appear, perform troubleshooting according to "4-4-3 Major error codes and troubleshooting".

The error codes appearing with messages will be stored in flash memory. See "4-4-2 Error codes stored in flash memory" for how to display the stored error codes.

⚠ Error has occurred.
  Error code No. 1100
  Please read the manual.

Fig. 4-4-3 Example of Message for
Serious Problem
(displayed in modes other than during
power on or recording)

ERROR : 1100

Fig. 4-4-4 Example of Message for
Serious Problem
(displayed during recording)

4-4-2 Error codes stored in flash memory

(1) Displaying error codes and clearing them

◆ Display method

1) Use the battery or AC adapter/charger to power DZ-MV350E, and then set the power switch to "VIDEO".

2) Display the error code beside the clock display using the following button operation:

   Press the SELECT button and release it; then, within 0.5 second, simultaneously hold down the SELECT and FOCUS buttons for at least 3 seconds.

◆ Display clearing method

1) Press the DISPLAY button.

   After displaying and checking error code, be sure to clear the error code display: If you neglect this, the error code will always be displayed.
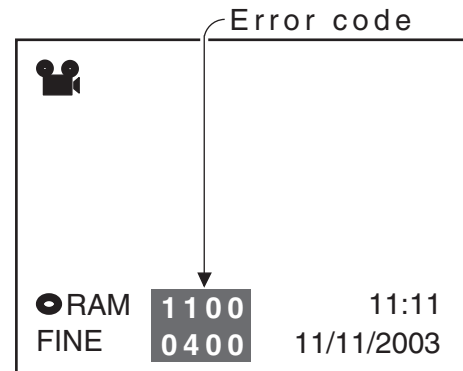

Fig. 4-4-5 Example of Error Code Display

(2) Details of error code display

1) Error codes of 2 problems are displayed one above the other.

   The error code of the latest problem appears in the upper row, and the error code of the problem that occurred before appears in the lower row. However, when the same problem occurs continuously, it will be judged as one problem, and the same error code will not appear continuously.

2) If only one error code is stored in flash memory, the error code will appear in the upper row, and "0000" will appear in the lower row.

3) If no error code is stored in flash memory, "0000" will appear in both rows.

4-4-3 Major error codes and troubleshooting

Table 4-4-1 shows the error codes that are likely to frequently appear, and troubleshooting when they appear.

If error codes other than those listed in Table 4-4-1 appear, check with the factory for troubleshooting.

Table 4-4-1 Major Error Codes and Troubleshooting (1/2)

Error code	Contents of problem	Troubleshooting
0400	Recognition of disc failed.	1) Set the power switch to "POWER OFF", reattach the battery or AC adapter/charger, and then set the power switch to "VIDEO" or "PHOTO" (disc). Take care not to subject DZ-MV350E to impact or vibrations at this time.
1100	Reading of data from disc failed.	2) Set the power switch to "POWER OFF", remove the disc and check whether or not it is dirty, scratched or distorted. If it is dirty, clean it referring to the next page, and then reload it. If it is scratched or distorted, use another disc. Then set the power switch to "VIDEO" or "PHOTO" (disc). 3) Replace the disc without regard as to whether it is dirty, scratched or distorted.
10AE	Disc physically damaged, i.g.,	Replace the disc.
10AF	scratched or distorted.	
0280	The optical pickup in disc drive unit failed to move.	1) Check the ambient temperature. 2) Set the power switch to "POWER OFF", remove the disc and check whether or not it is dirty, scratched or distorted. If it is dirty, clean it, and then reload it. If it is scratched or distorted, replace the disc. Then set the power switch to "VIDEO" or "PHOTO" (disc).
2881	Recognition of disc failed. [This message is likely to appear frequently when the ambient temperature is too low (0°C or less)].	**Disc cleaning method:** Use soft cloth to clean from inner to outer circumference in axial direction. **[Never use solvent.]** 3) Check to see whether or not condensation has occurred. If condensation has occurred, set the power switch to "POWER OFF" with the disc loaded, and then leave the DZ-MV350E in a dry place for 1-2 hours. 4) Replace the disc.

Table 4-4-1 Major Error Codes and Troubleshooting (2/2)

Error code	Contents of problem	Troubleshooting
3122	Recording on DVD-RAM disc failed.	1) Set the power switch to "POWER OFF", reattach the battery or AC adapter/charger, and then set the power switch to "VIDEO" or "PHOTO" (disc). Take care not to subject DZ-MV350E to impact or vibrations at this time.
3126	Writing data file to disc failed.	
3133		
7601	It takes much more time than necessary to process start or end of recording (timeout error).	2) Set the power switch to "POWER OFF", remove the disc and check whether or not it is dirty, scratched or distorted. If it is dirty, clean it referring to the next page, and then reload it. If it is scratched or distorted, use another disc. Then set the power switch to "VIDEO" or "PHOTO" (disc).
7890	Recording on DVD-R disc failed.	3) Replace the disc without regard as to whether it is dirty, scratched or distorted.
7791	Formatting DVD-RAM disc failed.	Format it again, or replace the disc.
3105	When recording photo, writing data to disc failed.	1) Set the power switch to "POWER OFF", reattach the battery or AC adapter/charger, and then set the power switch to "VIDEO" or "PHOTO" (disc). Take care not to subject DZ-MV350E to impact or vibrations at this time.
E000	Writing data to disc failed.	
EC87	Abnormal stop during reading or writing of data from/to disc.	
F100	Buffer has overflowed during recording.	2) Set the power switch to "POWER OFF", remove the disc and check whether or not it is dirty, scratched or distorted. If it is dirty, clean it, and then reload it. If it is scratched or distorted, replace the disc. Then set the power switch to "VIDEO" or "PHOTO" (disc).
F526	When starting recording, reading of data file on disc failed.	
F571	When recording photo, writing data to disc failed.	
F572	When recording video, writing data to disc failed.	3) When using DVD-R disc: Replace the disc without regard as to whether it is dirty, scratched or distorted. When using DVD-RAM disc: Initialize the disc (deleting all data recorded on disc), or replace the disc.
F573		
F600	Backup error	
F700	No response from disc drive even when 3 minutes has elapsed (drive timeout error).	
F924	Recording failed	
FB24	Initialization at start of recording failed.	
FB34	While recording mode was being transferred to recording pause, writing data to disc failed.	
FB44	During processing of buffer overflow error, writing data to disc failed.	

4-5 System Resetting/Resetting Camera Functions

The DZ-MV350E has two types of reset function: "System reset" and "Resetting camera functions". The reset operation will return the various settings to the defaults when the DZ-MV350E was shipped form factory.

Information:

If a defect occurs in product, take note of settings, and then execute system reset: The defect may disappear.

4-5-1 List of setting items to be reset

Table 4-5-1 shows the setting items that will be reset to defaults at the factory by the two types of reset operation: "system reset" and "resetting camera functions".

Utilize the memo column and note column provided in the table to enter the settings of any received device.

Yes: Will be reset

Table 4-5-1 Settings to Be Reset (1/2)   No: Will not be reset

Item	System reset	Camera function reset	Default at factory	Setting range	Remarks	Memo
Camera Functions Setup						
Program AE	Yes	Yes	Auto	Auto, Sports, Portrait, Spotlight, Sand & Snow, Low Light		
White Bal.	Yes	Yes	Auto	Auto, Set, Outdoor, Indoor		
EIS	Yes	Yes	On	On, Off		
Dig. Zoom	Yes	Yes	40×	240×, 40×, Off		
MIC Filter	Yes	Yes	Off	On, Off	Displayed when disc is used	
16:9	Yes	Yes	Off	On, Off		
Record Functions Setup						
VIDEO Mode	Yes	Yes	FINE	With DVD-RAM disc: XTRA, FINE, STD With DVD-R disc: FINE, STD	Displayed when disc is used	
Quality	Yes	Yes	FINE	FINE, NORM, ECO	Displayed when card is used	
Self Timer	Yes	Yes	Off	On, Off	Displayed when DVD-RAM disc or card is used	
OSD Output	Yes	Yes	On	On, Off		
Refer to the next page for Date Setup, LCD Setup and Initial Setup items.						

Yes: Will be reset

Table 4-5-1 Settings to Be Reset (2/2) No: Will not be reset

Item	System reset	Camera function reset	Default at factory	Setting range	Remarks	Memo
Date Setup						
Date Mode	Yes	Yes	day/month/year	year/month/day PM5:00, month/day/year 5:00PM, day/month/year 17:00		
Date Set	Yes	No	01/01/2003 0:00	----------------		
LCD Setup						
Brightness	Yes	Yes	Center	– [＿＿＿＿▮＿＿＿＿] +		
Color Level	Yes	Yes	Center			
Initial Setup						
Beep	Yes	Yes	On	On, Off		
Power Save	Yes	Yes	Off	On, Off		
Record LED	Yes	Yes	On	On, Off		
Language	Yes	Yes	English	English, French, Spanish, German, Italian		
Demo Mode	Yes	Yes	Auto	Auto, Off, Start		
Note Column						

4-5-2 System reset procedure

1) Set the power switch to "POWER OFF", and then disconnect the battery or AC adapter/charger.

2) Use a fine tipped pen, etc. to hold down the RESET button for approx. 2 seconds.
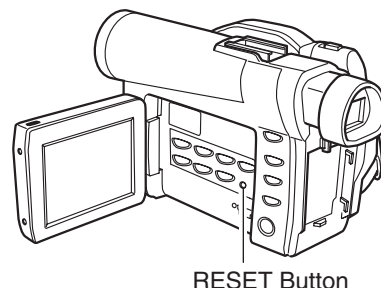
RESET Button

Fig. 4-5-1 System Reset

4-5-3 Procedure for resetting camera functions

1) Connect the battery or AC adapter/charger to power the DZ-MV350E.

2) Set the power switch to "VIDEO" and place the DZ-MV350E in the recording pause status; loading disc is not necessary at this time. For the following steps, operate DZ-MV350E while viewing the LCD monitor or viewfinder.

3) Press the MENU button to display the camera setting menu screen.

4) Use the joystick to choose "Initial Setup", and then press the playback/pause button (press the center of joystick).

5) Use the joystick to choose "Reset", and then press the playback/pause button: The screen for verifying reset will appear.

6) Use the joystick to choose "YES", and then press the playback/pause button: Reset will be executed.

7) After reset, press the MENU button to close the camera setting menu.

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4-6 Checking Versions of Firmware and Updating

The DZ-MV350E stores the 4 types of firmware shown in Table 4-6-1 in flash memory.

These firmware programs will be updated whenever necessary to improve the performance of DZ-MV350E.

Check to see whether any defects in DZ-MV350E can be eliminated by updating any firmware programs: If improvement is likely, update them.

Information:

If any corrections in firmware are made at the factory, the information on how to obtain the firmware data and create a disc containing upgraded firmware will be reported on service bulletin, etc.

Table 4-6-1 List of DZ-MV350E Firmware Programs

Type of firmware	Description	Remarks
System firmware	Software that drives SH CPU: Controls the operation of entire system, including recording, playback, Disc Navigation, connections with external device	
Camera microprocessor firmware	Controls the operation of camera block (including optical system), clock, battery, input/output	Does not require updating
Drive main firmware	These programs control the DVD disc drive system (mechanism block)	
Drive core firmware		

4-6-1 Checking firmware versions

(1) Purpose

When checking whether updating firmware is needed or not, use the following procedure to view the information display or version display screen (see Fig. 4-6-1) and check the version number.

Only the titles at top left of screens will be different when no disc is loaded or disc is loaded; the other display contents will be the same.

(2) Version display/clear method

◆ Display method

1) Connect the battery or AC adapter/charger to power the DZ-MV350E.

2) Set the power switch to "VIDEO" to set DZ-MV350E to the recording pause status. Operate DZ-MV350E while viewing the LCD screen or viewfinder from this point.

3) When a disc is loaded, press the DISC NAVIGATION button to display the thumbnail display screen: This step is not necessary if no disc is loaded.

4) Operate the following buttons to view the information display screen (with no disc loaded) or version display screen (with disc loaded):

Tilt the joystick up and hold it, then simultaneously press the SELECT button and REC buttons.

◆ Display clearing method

1) Press the stop/cancel button to restore the thumbnail display screen. To return to the normal screen, press the DISC NAVIGATION button.

(3) Details of information/version display screens

Table 4-6-2 Details of Information/Version Display Screens

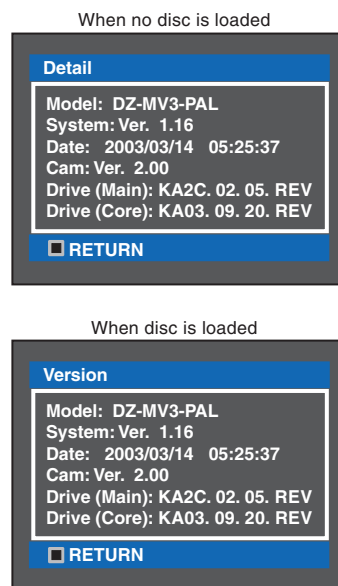| Item	Display contents
Model	Model name
System Ver.	Version number of system firmware
Date	Date/time when firmware was created
Cam Ver.	Version number of Camera microprocessor firmware
Drive (Main)	Version number of drive main firmware
Drive (Core)	Version number of drive core firmware

When no disc is loaded

Detail

Model: DZ-MV3-PAL
System: Ver. 1.16
Date: 2003/03/14 05:25:37
Cam: Ver. 2.00
Drive (Main): KA2C. 02. 05. REV
Drive (Core): KA03. 09. 20. REV

☐ RETURN

When disc is loaded

Version

Model: DZ-MV3-PAL
System: Ver. 1.16
Date: 2003/03/14 05:25:37
Cam: Ver. 2.00
Drive (Main): KA2C. 02. 05. REV
Drive (Core): KA03. 09. 20. REV

☐ RETURN

Fig. 4-6-1 Example of Information/
Version Display Screens

4-6-2 Updating firmware

(1) Purpose

If you receive information from the factory that updating firmware is needed, you should do it to improve the performance, functions and operability of DZ-MV350E.

(2) Procedure for updating

1) Acquire the data for updating of firmware and create a disc for updating.
   The information on how to obtain the firmware data and create a disc containing upgraded firmware will be reported on service bulletin, etc.

2) Set the power switch to "POWER OFF", and then use the AC adapter/charger to power the DZ-MV350E. Do not use a battery: Using battery may interrupt power of DZ-MV350E during work.

3) Insert the disc for updating firmware.

4) Set the power switch to "POWER OFF".

5) After approx. 20 seconds, the updating start screen (Fig. 4-6-2) will appear, and the firmware programs will be automatically updated thereafter.
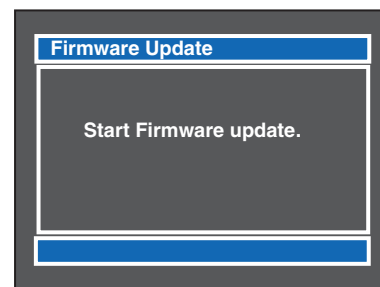
Firmware Update

Start Firmware update.

Fig. 4-6-2 Updating Start Screen

During updating, the screens showing that each firmware program is being updated (Figs. 4-6-3, 4-6-4, 4-6-5), followed by the screen showing that updating is complete (Fig. 4-6-6), will appear.
However, not all firmware programs need updating every time. No screen will appear for the firmware programs that do not require updating.

6) When all required updating is complete, the screen for verifying the version of updated firmware will appear, and the updated firmware will be displayed in red (see Fig. 4-6-7).

7) Set the power switch to "POWER OFF", and then remove the disc for updating to complete updating.

Firmware Update

Updating system.

Do not turn off power.
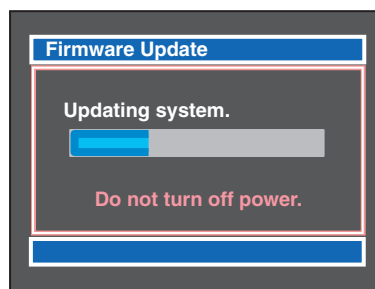
Fig. 4-6-3 Updating Screen (System)

Firmware Update

Updating drive (Main).
Please wait about 2 minutes.

Do not turn off power.
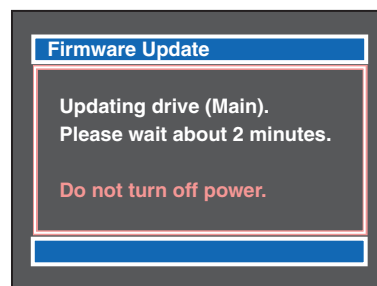
Fig. 4-6-4 Updating Screen
(Drive Main)

Firmware Update

Updating drive (Core).
Please wait about 2 minutes.

Do not turn off power.
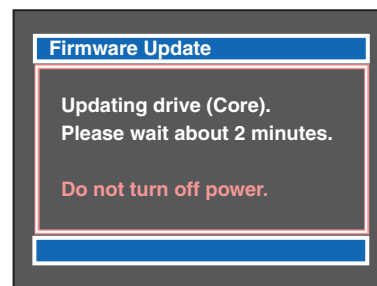
Fig. 4-6-5 Updating Screen
(Drive Core)

Firmware Update

Firmware updated.
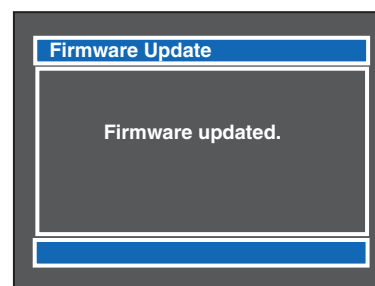
Fig. 4-6-6 Updating Complete Screen

Firmware Update

Model: DZ-MV3-PAL
System: Ver. x.xx
Drive (Main): xxxx.xx.xx.REV
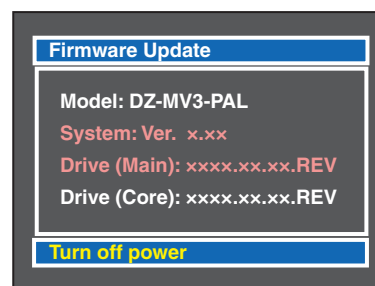Drive (Core): xxxx.xx.xx.REV

Turn off power

Fig. 4-6-7 Screen for Verifying the
Version of Updated

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4-7 Trouble Diagnosis

Information:

Although the procedures for disassembling and reassembling the DZ-MV380E are different from those for DZ-MV350E, the contents in "4-7-3 Trouble diagnosis table" still apply to both devices.

4-7-1 Selecting service position

For trouble diagnosis, with a few exceptions it is necessary to disassemble the DZ-MV380E and set it to the service position.

There are four types of service position (A)-(D) as shown in the figures below.

Refer to Table 4-7-1 and select the appropriate service position for the defective symptom.
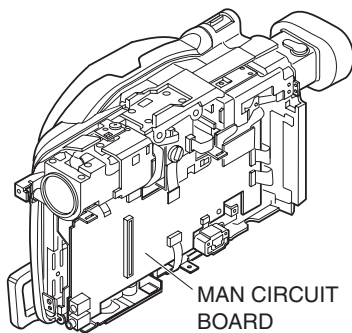
Fig. 4-7-1 Service Position (A)
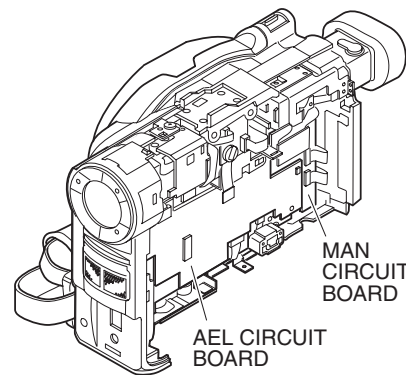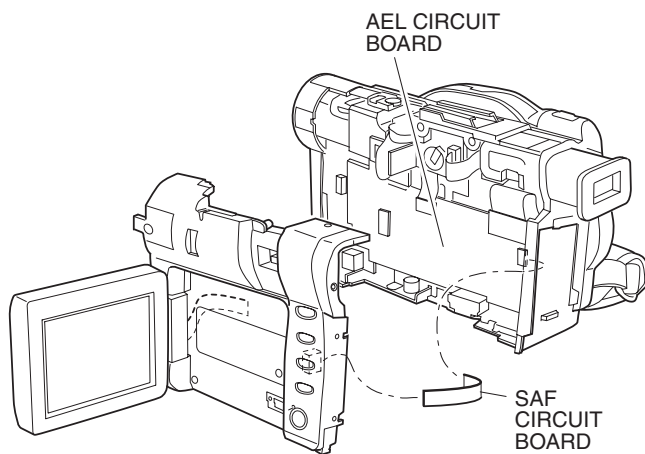
Fig. 4-7-2 Service Position (B)
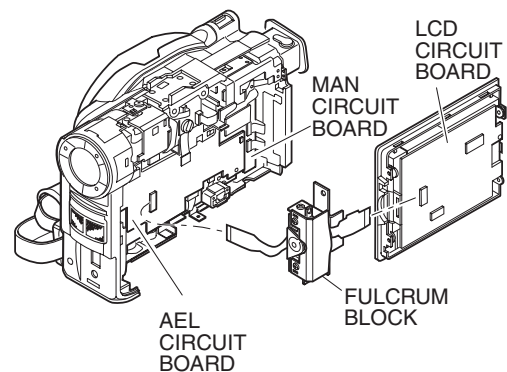
Fig. 4-7-3 Service Position (C)

Fig. 4-7-4 Service Position (D)

4-7-2 Disassembly/reassembly for enabling service position

Prohibition

Disconnect the AC adapter/charger of battery pack from the DZ-MV380E.

The DZ-MV380E has a built-in laser emitter block. Do not look into it: If Laser beam strikes your eye, it could cause serious damage.

To set to service position (A), (B) or (C), remove the following components, referring to "5. Disassembly and Reassembly":

a) Hood, Filter Piece, and Lens Cover (Fig. 5-3-2)

b) Eyecup, SAF Circuit Board, and L Block (Figs. 5-3-3, 5-3-4)

c) Front Block, FAF Circuit Board, and R Block (Fig. 5-3-5)

d) AEL and MAN Circuit Boards (Fig. 5-3-13)

Information:

Numbers in figures are step numbers for setting procedure.

(1) Setting to service position (A) (Fig. 4-7-5)

Refer to Table 4-7-1 and the MAN circuit board diagram: Solder a lead wire of approx. 10 cm to the check point that corresponds to the symptom (except for terminals of IC or connector/plug).

1) Assemble the MAN circuit board into R block.

2) Connect the DRF circuit board to MAN circuit board.

3) Connect the SEN circuit board to MAN circuit board.

4) Connect all the connectors on MAN circuit board.

Note:

Assemble the MAN circuit board independently into R block only when setting to service position (A). During normal assembly, or when setting to service position (B), first be sure to connect the AEL circuit board to MAN circuit board, and then assemble them into R block. If the AEL circuit board is connected to MAN circuit board that is already assembled in R block, connection error may occur, or the circuit boards or frame could be damaged.

Information:

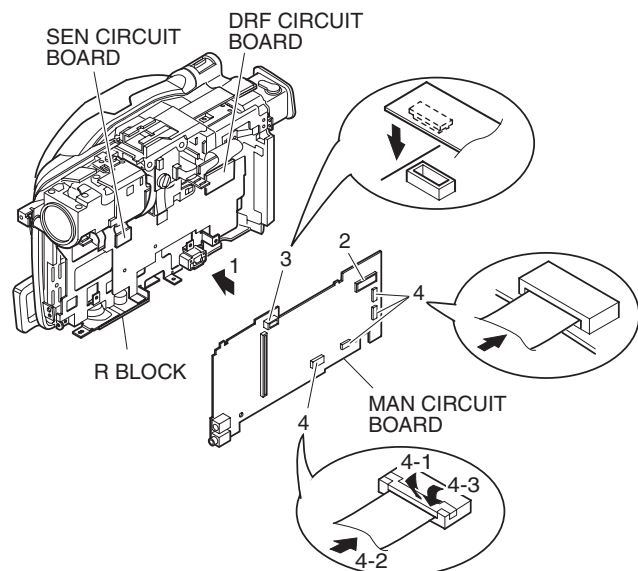No button or joystick operation on unconnected L block can be performed.

Fig. 4-7-5 Setting to Service Position (A)

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(2) Setting to service position (B) (Fig. 4-7-6)

Refer to Table 4-7-1 and the MAN and AEL circuit board diagrams: Solder a lead wire of approx. 10 cm to the check point that corresponds to the symptom (except for terminals of IC or connector/plug).

1) Connect the MAN and AEL circuit boards.
2) Assemble the MAN and AEL circuit boards into R block.
3) Connect the DRF circuit board to MAN circuit board.
4) Connect the SEN circuit board to MAN circuit board.
5) Connect the SHE circuit board to AEL circuit board.
6) Connect all the connectors on MAN and AEL circuit boards.
7) Connect the front block and AEL circuit board via FAF circuit board.

Information:

Use the remote control for operation of button/joystick from L block that is not connected.
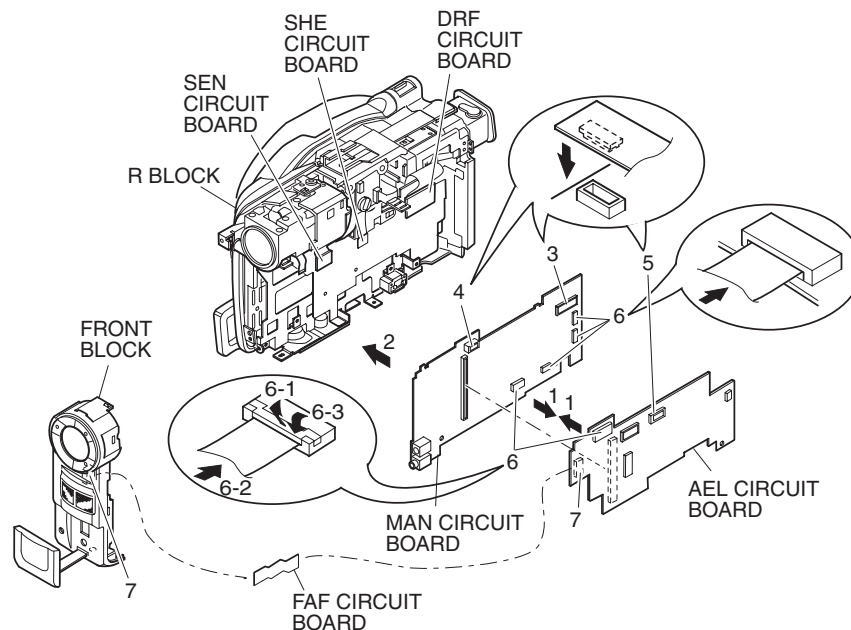

Fig. 4-7-6 Setting to Service Position (B) or (C)

(3) Setting to service position (C) (Figs. 4-7-6, 4-7-7)

Refer to Table 4-7-1 and the MAN and AEL circuit board diagrams: Solder a lead wire of approx. 10 cm to the check point that corresponds to the symptom (except for terminals of IC or connector/plug).

1) Connect the MAN and AEL circuit boards. (Fig. 4-7-6)
2) Assemble the MAN and AEL circuit boards into R block.
3) Connect the DRF circuit board to MAN circuit board.
4) Connect the SEN circuit board to MAN circuit board.
5) Connect the SHE circuit board to AEL circuit board.
6) Connect all the connectors on MAN and AEL circuit boards.
7) Connect the front block and AEL circuit board via FAF circuit board.

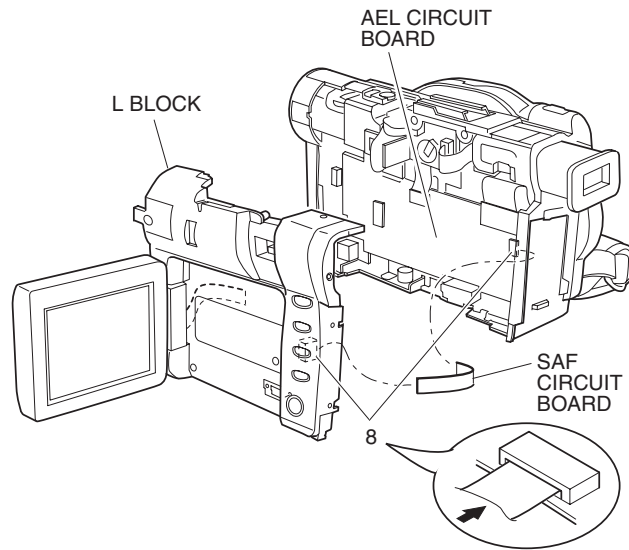8) Connect the L block and AEL circuit board via SAF circuit board. (Fig. 4-7-7)

Fig. 4-7-7 Setting to Service Position (C)

(4) Setting to service position (D) (Fig. 4-7-8)

Remove the following components, referring to "5. Disassembly and Reassembly":

  a) Hood, Filter Piece, and Lens Cover (Fig. 5-3-2)
  b) Eyecup, SAF Circuit Board, and L Block (Figs. 5-3-3, 5-3-4)
  c) L Cover, L Case and LCD Block (Fig. 5-3-6)
  d) LCD Case U, MR Circuit Board, and Fulcrum Block (Fig. 5-3-8)

1) Connect the flat cable of the fulcrum block to the AEL circuit board.
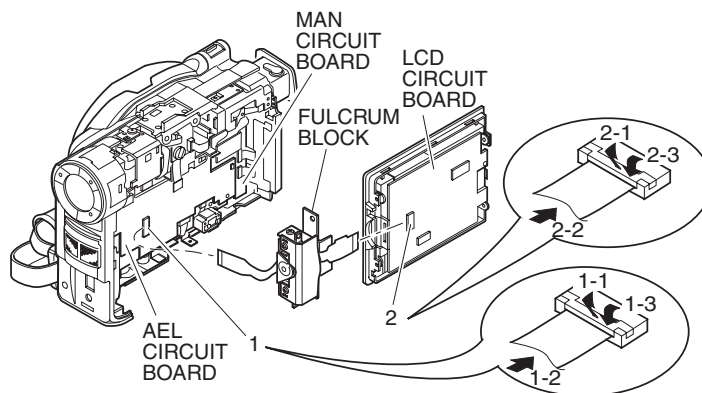2) Connect the flat cable of the fulcrum block to the LCD circuit board.

Fig. 4-7-8 Setting to Service Position (D)

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4-7-3 Trouble diagnosis table

Interpreting the trouble diagnosis table:

1) Letters in brackets [ ] in "check points" columns show the name and side of circuit board.
   Example: [MAN-A] shows that the check point exists on side A of MAN circuit board.
2) If there are multiple check points for one symptom, check the items from the top down.

Information:

Use the DZ-ACS1 adapter/charger to power DZ-MV380E for trouble diagnosis.

Prohibition

1) The LCD circuit board has a high-voltage section: When troubleshooting it, take great care to prevent electric shock by wearing gloves, etc.
2) During troubleshooting, never look directly into the objective lens in optical pickup block, and take great care that the reflected laser beam does not enter your eye.

Table 4-7-1 Trouble Diagnosis Table (1/3)

Symptom	Service position	Check points	Detail of check	Troubleshooting due to check results
No power	(A)	F0501 [MAN-B]	Continuity check	NG: Replace fuse.
		F0502 [MAN-B]		
		F0503 [MAN-B]		
		F0504 [MAN-B]		
		TL0503 [MAN-A]	Hi when power turns on (REG ON)	NG: Replace MAN circuit board.
		IC1503-53 to 56 [MAN-B] (Do not solder lead wire.)	Approx. 3V DC (SYS3V)	
		TL0510 [MAN-A]	Approx. 1.5V DC (C1.6V)	
		TL0511 [MAN-A]	Approx. 3.2V DC (CAM3V)	
		TL0512 [MAN-A]	Approx. 4.8V DC (CAM5V)	
		TL0513 [MAN-A]	Approx. 3V DC (D3V)	
		TL0515 [MAN-A]	Approx. 5V DC (D5V)	
		TL0517 [MAN-B]	Approx. 2.5V DC (D2.5V)	
		TL0518 [MAN-B]	Approx. 15V DC (C15V)	
Error message "DISC ACCESS" appears and disc is not recognized.	-----	-----	Error message does not disappear and POWER switch does not work.	Check connections of DRF circuit board.
			Error message does not disappear after 3 seconds or more.	Replace disc drive unit.

Table 4-7-1 Trouble Diagnosis Table (2/3)

Symptom	Service position	Check points	Detail of check	Troubleshooting due to check results
Error message "NO DISC" appears even when normal disc is inserted	-----	-----	Error message appears approx. 1 second after disc is inserted.	Check connections of DRF circuit board. If no abnormality is found, replace disc drive unit.
			Error message appears within 10 seconds after disc is inserted	Replace disc drive unit.
Error message "CHECK DISC" appears	-----	-----	Disc is protected.	Yes: Release protect. No: Replace disc drive unit.
Message "Disc is not formatted. Format the disc now? YES NO" appears	-----	-----	Normally initialized disc was inserted	Yes: Replace disc drive unit. No: Change or Initialize disc.
Date is not backed up	(B)	TL7041 [AEL-A]	3V DC is not supplied.	NG: Check backup Lithium battery LA1801. OK: Replace MAN board.
Zoom switch does not work	(A)	TL1543 [MAN-B]	Switch operation changes voltage.	NG: Replace rear cover. OK: Replace MAN circuit board.
EJECT switch does not work	(A)	TL1547 [MAN-B]	Switch operation changes voltage.	
Does not enter REC PAUSE status	(B)	TL1541 [MAN-B]	Switch operation changes voltage.	
No image in LCD	(D)	TL3418 [LCD]	INV5V(5V)	NG: Check cable between LCD circuit board and AEL circuit board. Or replace MAN circuit board. OK: Check cable between LCD circuit board and AEL circuit board. Or check connections of MAN and AEL circuit boards.
	-----	-----	Check damage to flat cable between LCD circuit board and AEL circuit board	NG: Replace fulcrum block. OK: Replace MAN circuit board.
No image in EVF	(B)	TL3719 [AEL-B]	Video signal	NG: IC3701 faulty. OK: Check flat cable between EVF, SHE and AEL circuit boards. Or replace EVF unit.

Table 4-7-1 Trouble Diagnosis Table (3/3)

Symptom	Service position	Check points	Detail of check	Troubleshooting due to check results
Conspicuous block noise during movie recording	-----	-----	-----	Replace MAN circuit board.
Camera image is abnormal	(B)	TL2084 [MAN-A] TL2085 [MAN-A] TL2086 [MAN-A] TL2089 [MAN-A] TL2090 [MAN-A] TL2091 [MAN-A] TL2095 [MAN-A]	Check CCD sensor drive pulses	NG: Replace MAN circuit board.
	(B)	TL2082 [MAN-A]	Check CCD output signal	NG: Replace lens unit. OK: Replace MAN circuit board.
No video from video output jack	-----	-----	Image appears in LCD or EVF.	No: Replace MAN circuit board.
	(B)	TL6010 [MAN-B]	Video signal	NG: IC6103 or its peripheral circuits faulty. OK: Check JK6002. Or replace MAN circuit board.
No sound from speaker	(C)	TL1535 [MAN-B] TL1536 [MAN-B]	Audio signal	NG: IC6103 or its peripheral circuits faulty. OK: Replace speaker.
No audio from audio output jack	(B)	TL6006 [MAN-B] TL6009 [MAN-B]	Audio signal	NG: IC6103 or its peripheral circuits faulty. OK: Check JK6002. Or replace MAN circuit board.
Microphone sound cannot be recorded	-----	PG1802 (Do not solder lead wire.)	Check connections	NG: Connector connections faulty.
	(B)	IC6101-1, 7, 8, 14 [AEL-A] (Do not solder lead wire.)	Audio signal	NG: Check IC6101 its peripheral circuits. Or replace microphone.
	(B)	TL6101 [AEL-B] TL6102 [AEL-B]		NG: Check IC6102 and peripheral circuits. OK: Check IC6201 its peripheral circuits.
Sound from external microphone cannot be recorded	-----	Microphone jack (JK6001)	Connection of external microphone	NG: External microphone connection faulty.
	(B)	IC6201-3,4 [AEL-A] (Do not solder lead wire.)	Audio signal	NG: Replace MAN circuit board. OK: Check IC6102 its peripheral circuits.

4-8 Procedure for Removing Disc from Faulty DZ-MV380E

Information:

DZ-MV380E has an accessory shoe equipped with the power/control terminal, and the shape and removal of accessory shoe are different from those for DZ-MV350E.

4-8-1 Item to be checked

Connect the AC adapter/charger or charged battery pack, making sure the ACCESS/PC indicator turns off (after the disc rotation stops and the sound showing that the disc lock has been released is heard), and then press the DISC EJECT button again.

Even with normal product, the disc cannot be removed while the ACCESS/PC indicator is lit or blinking.

Information:

Connect the charged battery pack or the AC adapter/charger (power supply) before pressing the DISC EJECT button.

With conventional DVD video camera/recorders, the DISC EJECT button will work even when no power supply is connected. However, with the DZ-MV380E, the DISC EJECT button will not work without a power supply connected.

Prohibition

After the above check, disconnect the AC adapter/charger of battery from the DZ-MV380E.

The DZ-MV380E has a built-in laser emitter block. Do not look into it: If Laser beam strikes your eye, it could cause serious damage.

4-8-2 How to remove disc

If the disc cannot be ejected after performing "4-8-1 Item to be checked", remove it using the procedure in this section.

Information:

Numbers in figures are step numbers of setting procedure, and letters in brackets [　] show the types of screw.

1) Turn the hood (a) in the direction of the arrow to remove it. (See Fig. 4-8-1)

2) Remove three screws [A], and then remove the filter piece (b). Be careful not to scratch the lens surface with screwdriver at this time.

3) Remove the lens cover (c) in the direction of the arrow.

4) Remove the shoe cover in the direction of the arrow.

5) Remove four screws [X].

6) Move the parts of the accessory shoe in the direction of the arrow.

(a) Hood
(b) Filter Piece
(c) Lens Cover
(d) Shoe Cover
(e) Parts of Accessory Shoe
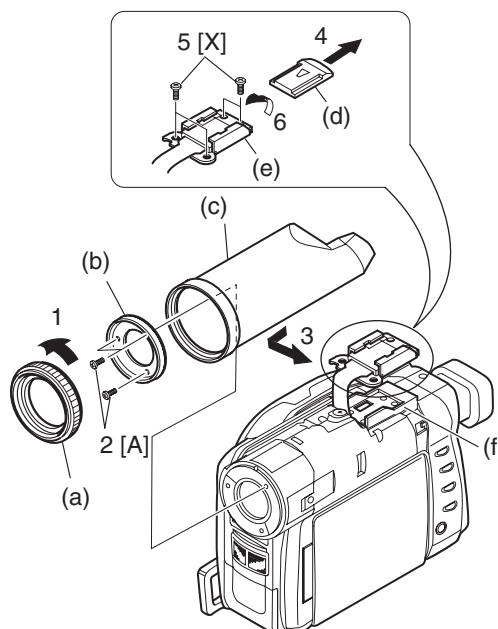(f) Accessory Shoe

[A] M1.7×4 (Black)

[X] M2×2.5 (Black)

Fig. 4-8-1 How to Remove Disc

7) Insert a screwdriver, etc. into the hole in accessory shoe at the top of product, and move the lock arm (g) in the direction of the arrow to open the disc loading block. (See Fig. 4-8-2)

8) After removing the disc, close the disc loading block to protect the disc drive unit. When reinstalling removed components, use the reverse procedure to removal.

9) After work, reinstall part of accessory shoe and screws [X] to the accessory shoe: The accessory shoe is set as a service part, including screws [X].
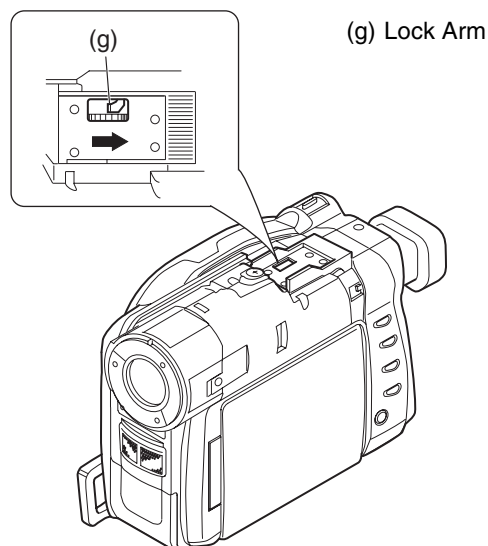
(g) Lock Arm

Fig. 4-8-2 How to Remove Disc

4-9 Special Functions

Restriction:
The information included in this section is exclusively for service personnel: Do not disclose it to persons other than service engineers.

4-9-1 Forced formatting of DVD-RAM disc

(1) Application/Symptom

Perform this procedure when the Disc Navigation screen does not start normally due to a defect in data on disc and formatting is not possible by the procedure explained in instruction manual.

(2) Operational procedure

Caution:
1) Initialization will delete all data on disc: Copy the necessary files to PC, etc.
2) Do not turn power off or remove the disc during initialization: Such an interruption will make the disc unusable.

1) Use the AC adapter/charger to power DZ-MV350E, and set the power switch to "VIDEO" or "PHOTO".
   Be sure to use the AC adapter/charger for formatting disc: If power is interrupted during work, the disc could become unusable.
2) Make sure that the DVD-RAM disc to be formatted is free from dirt or scratch. If the disc is dirty, clean it; if the disc is scratched, replace it. Any dirt or scratch on disc could disable normal formatting.
3) Insert the DVD-RAM disc to be formatted.
4) After the disc is recognized, operate the following buttons to display the disc formatting screen (Fig. 4-9-2): Hold down the SELECT, REC and + (plus) buttons simultaneously for at least 3 seconds
5) Use the joystick to choose "YES" and press the playback/pause button (press the center of joystick): The initialization will start and message "Formatting ..." will appear.
6) When formatting is complete, message "Finished" will appear for several seconds, and then the normal screen will automatically be restored.

Disc cleaning method:
Use soft cloth to clean from inner to outer circumference in axial direction.
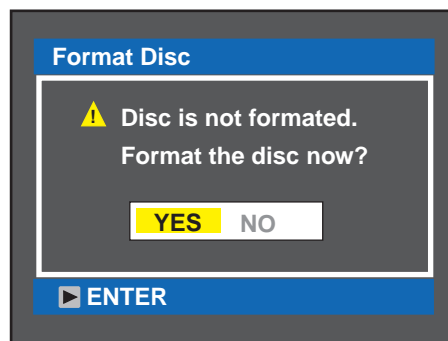
[Never use solvent.]

Fig. 4-9-1

Format Disc

⚠ **Disc is not formated.**
Format the disc now?

YES NO

▶ **ENTER**

Fig. 4-9-2 Screen for Disc Formatting

5 Disassembly and Reassembly

5-1 Preparations for Disassembly

(1) Checking Disc

Connect the AC adapter/charger or charged battery pack, and then press the DISC EJECT button to make sure that no disc is inserted. After check, close the disc cover.

If the disc cover does not open normally, refer to "4-8 Procedure for Removing Disc from Faulty DZ-MV380E", and open the holder.

Prohibition

After the above check, disconnect the AC adapter/charger of battery pack from the DZ-MV380E. The DZ-MV380E has a built-in laser emitter block. Do not look into it: If Laser beam strikes your eye, it could cause serious damage.

---

(2) Checking Card

Make sure that no card is loaded in the card slot. After check, close the card slot cover.

5-2 Order of Disassembly

Refer to "Disassembly Flowchart" in Fig. 5-2-1 for the order of removing components. When reassembling components, use the reverse order to removal unless otherwise specified.

Note:

When replacing components in the DZ-MV380E, be sure to use only those shown in "Replacement Parts List".

Reading Disassembly Flowchart:

After locating the target component in the flowchart, remove all components of the target in sequence, following the arrows (routes) from the top of flowchart. If multiple routes exist to the target component from the top of flowchart, remove all the components on all the routes.
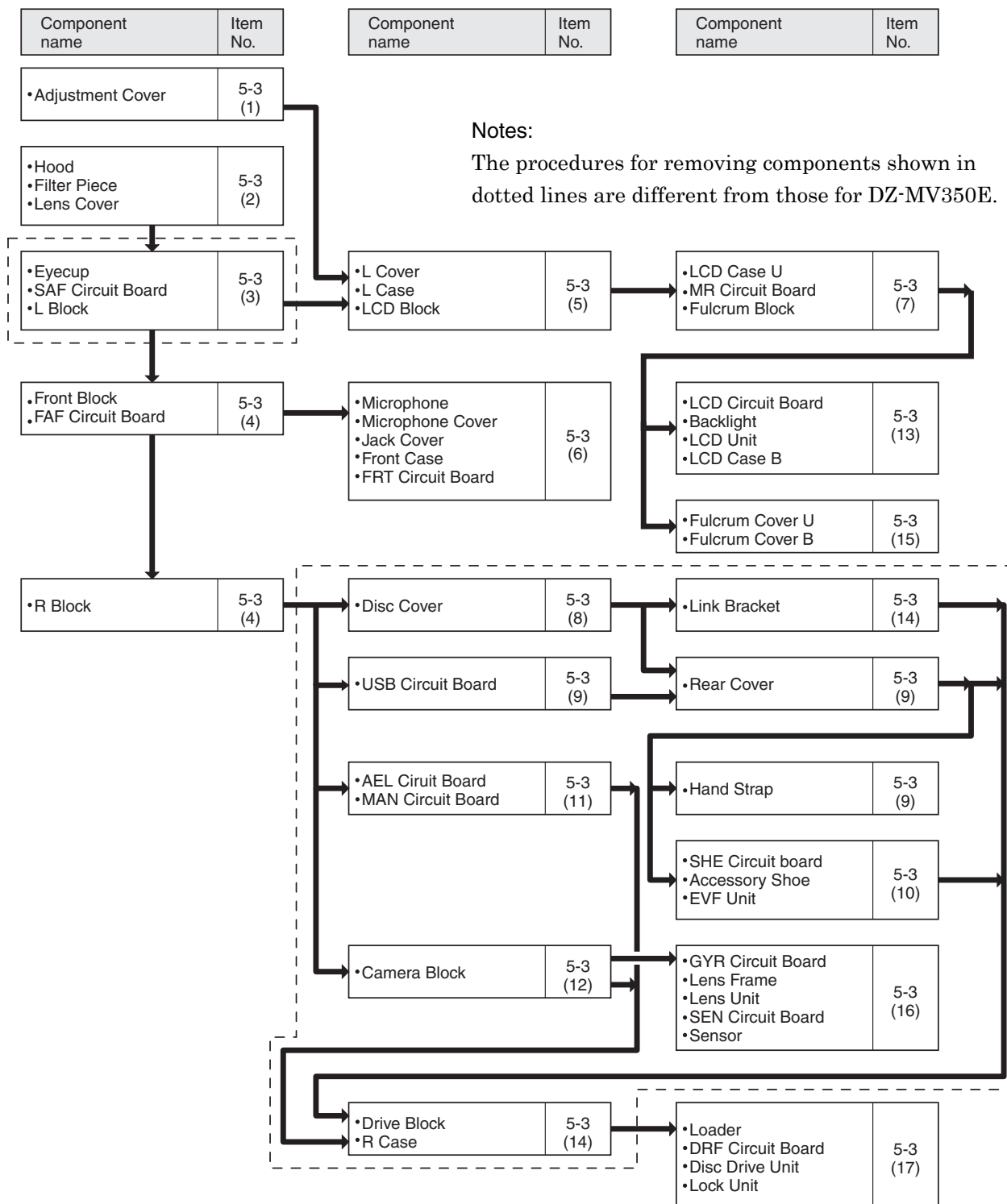
Component name	Item No.
•Adjustment Cover	5-3 (1)

Component name	Item No.

Component name	Item No.

Notes:

The procedures for removing components shown in dotted lines are different from those for DZ-MV350E.

Component name	Item No.
•Hood •Filter Piece •Lens Cover	5-3 (2)

•Eyecup •SAF Circuit Board •L Block	5-3 (3)

•L Cover •L Case •LCD Block	5-3 (5)

•LCD Case U •MR Circuit Board •Fulcrum Block	5-3 (7)

•Front Block .FAF Circuit Board	5-3 (4)

•Microphone •Microphone Cover •Jack Cover •Front Case •FRT Circuit Board	5-3 (6)

•LCD Circuit Board •Backlight •LCD Unit •LCD Case B	5-3 (13)

•Fulcrum Cover U •Fulcrum Cover B	5-3 (15)

•R Block	5-3 (4)

•Disc Cover	5-3 (8)

•Link Bracket	5-3 (14)

•USB Circuit Board	5-3 (9)

•Rear Cover	5-3 (9)

•AEL Ciruit Board •MAN Circuit Board	5-3 (11)

•Hand Strap	5-3 (9)

•SHE Circuit board •Accessory Shoe •EVF Unit	5-3 (10)

•Camera Block	5-3 (12)

•GYR Circuit Board •Lens Frame •Lens Unit •SEN Circuit Board •Sensor	5-3 (16)

•Drive Block •R Case	5-3 (14)

•Loader •DRF Circuit Board •Disc Drive Unit •Lock Unit	5-3 (17)

Fig. 5-2-1 Disassembly Flowchart

5 - 2

5-3 Disassembly

Information:
Numbers in figures are step numbers in disassemble procedure, and letters in brackets [　] show the types of screw. Letters in brackets (　) show the name of parts.

(1) Adjustment Cover (Fig. 5-3-1)

1) Open the LCD monitor.
2) Insert a fine-tipped flat-bladed screwdriver (b) into groove of adjustment cover (a), and remove the adjustment cover in the direction of the arrow. Being careful not to scratch the adjustment cover and L case (c) with screwdriver at this time.

(a) Adjustment Cover
(b) Screwdriver
(c) L Case
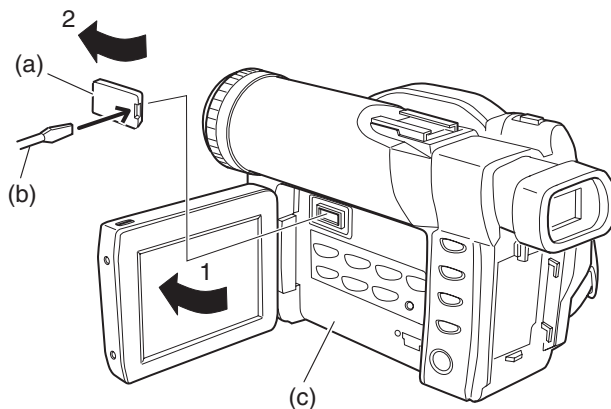
Fig. 5-3-1 Adjustment Cover

(2) Hood, Filter Piece, and Lens Cover (Fig. 5-3-2)

1) Turn the hood (a) in the direction of the arrow to remove it.
2) Remove three screws [A], and then remove the filter piece (b), being careful not to scratch the lens surface with screwdriver at this time.
3) Remove the lens cover (c) in the direction of the arrow.

(a) Hood
(b) Filter Piece
(c) Lens Cover
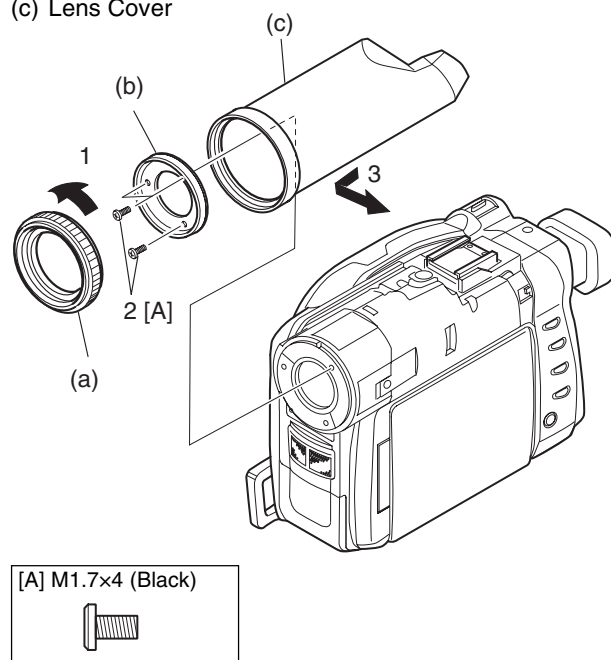
[A] M1.7×4 (Black)

Fig. 5-3-2 Hood, Filter Piece, and Lens Cover

(3) Eyecup, SAF Circuit Board, and L Block (Figs. 5-3-3, 5-3-4)

◆ Eyecup (a)

1) Pull the EVF unit

2) Remove the eyecup in the direction of the arrow.

◆ SAF Circuit Board (b) and L Block (c)

3) Open the LCD monitor.

4) Remove screw [A] from the top of L block.

5) Remove two screws [A] from the battery pack attachment platform.

6) Remove screw [A] from the rear of L block.

7) Remove two screws [B] from both sides of PC connection terminal.

8) Remove two screws [A] from the bottom of L block.

9) Open the L block from the rear in the direction of the arrow: Be careful not to damage the SAF circuit board and flat cable (e) between L block and R block (d).

10) Disconnect the SAF circuit board between L and R blocks. The SAF circuit board is a film-like board: Do not bend or fold it.

11) Disconnect the flat cable between L and R blocks.

12) Remove the L block from R block in the direction of the arrow.
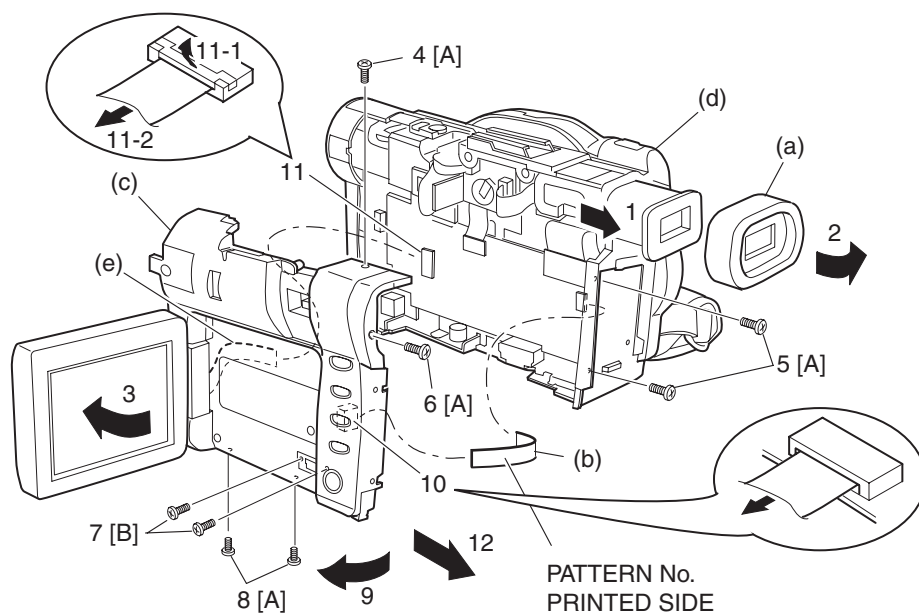
Fig. 5-3-3 Eyecup, SAF Circuit Board, and L Block

(a) Eyecup
(b) SAF Circuit Board
(c) L Block
(d) R Block
(e) Flat Cable
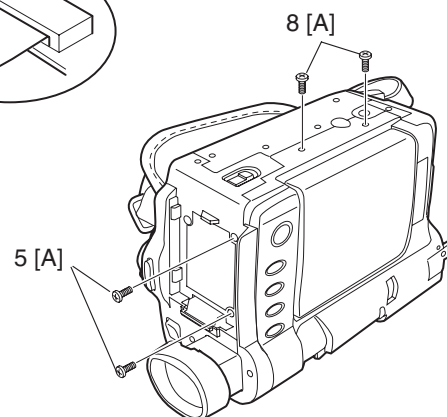
Fig. 5-3-4 Eyecup, SAF Circuit Board, and L Block

(4) Front Block, FAF Circuit Board, and R Block (Fig. 5-3-5)

1) Open the jack cover (d), and then remove screw [C] beside the jack.
2) Remove screw [D] from the bottom of front block (a).
3) Remove the front block from R block (c) in the direction of the arrow: Be careful not to damage the FAF circuit board (b) between front block and R block.
4) Disconnect the FAF circuit board between front block and R block. The FAF circuit board is a film-like board: Do not bend or fold it.

(a) Front Block
(b) FAF Circuit Board
(c) R Block
(d) Jack Cover

[C] M1.7×4 (Silver)

[D] M1.6×2.5 (Black)

(c)

(a)

3

1 [C]

4

(b)

PATTERN No.
PRINTED SIDE

(d)

2 [D]
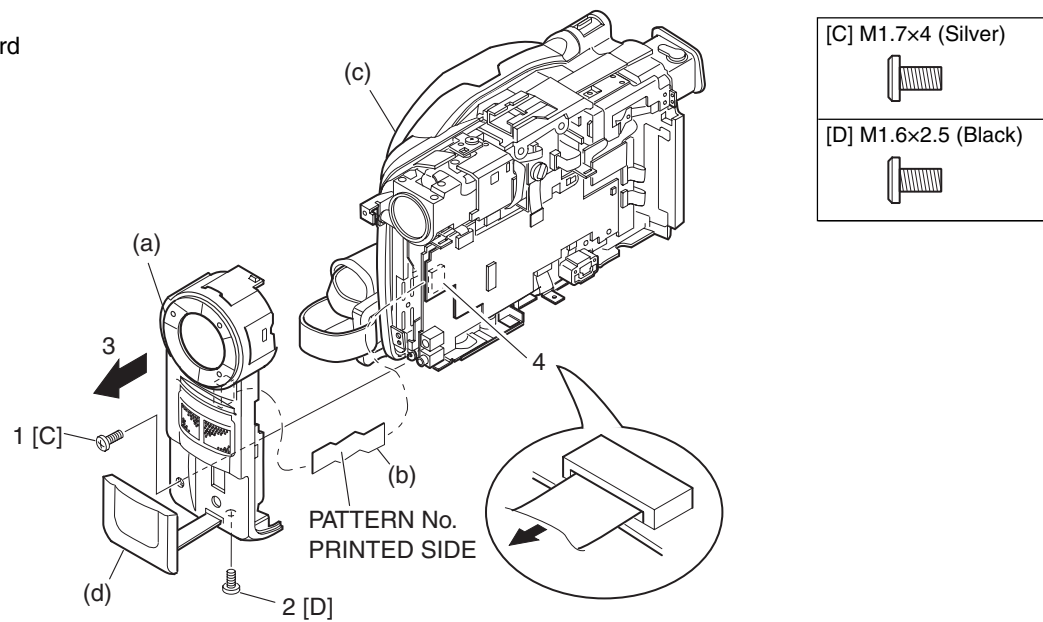
Fig. 5-3-5 Front Block, FAF Circuit Board, and R Block

(5) L Cover, L Case and LCD Block (Fig. 5-3-6)

◆ L Cover (a)

1) Remove five screws [E] and then remove the LCD block and fulcrum block (d) assembled with L case from the L cover.

◆ L Case (b) and LCD Block (c)

2) Remove the screws [F] and remove the fulcrum block with LCD block from the L case.

Note:

Take care when handling the LCD block: The LCD block contains the LCD unit and backlight, which are precision components. Subjecting the LCD block to impact could result in a fault.
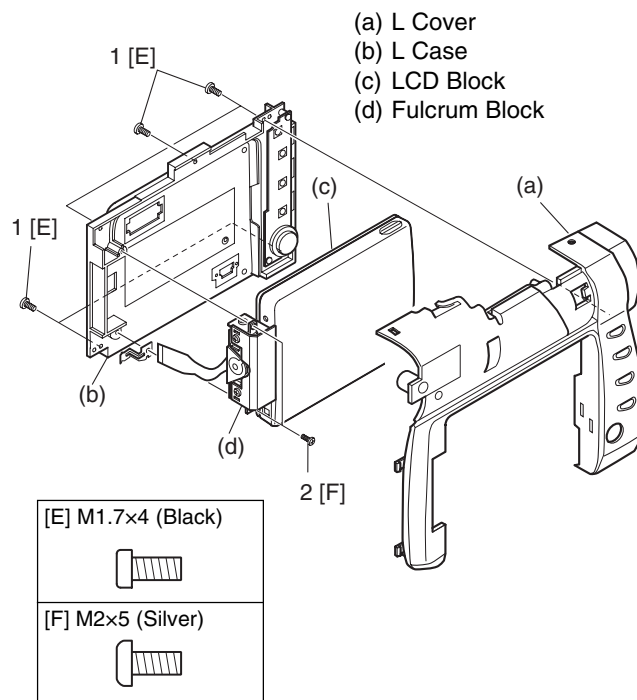
(a) L Cover
(b) L Case
(c) LCD Block
(d) Fulcrum Block

1 [E]

1 [E]

2 [F]

[E] M1.7×4 (Black)

[F] M2×5 (Silver)

Fig. 5-3-6 L Cover, L Case and LCD Block

(6) Microphone, Microphone Cover, Jack Cover, Front Case, and FRT Circuit Board (Fig. 5-3-7)

◆ Microphone (a) and Microphone Cover (b)

1) Remove two screws [E], and then remove the FRT circuit board and microphone assembled with earth plate (f) from the front case.

2) Disconnect the flat cable and remove the microphone from the FRT circuit board.

3) Remove the microphone cover from the front case in the direction of the arrow.

◆ Jack Cover (c) and Front Case (d)

4) Release the two tabs, and then remove the jack cover from the front case.

◆ FRT Circuit Board (e)

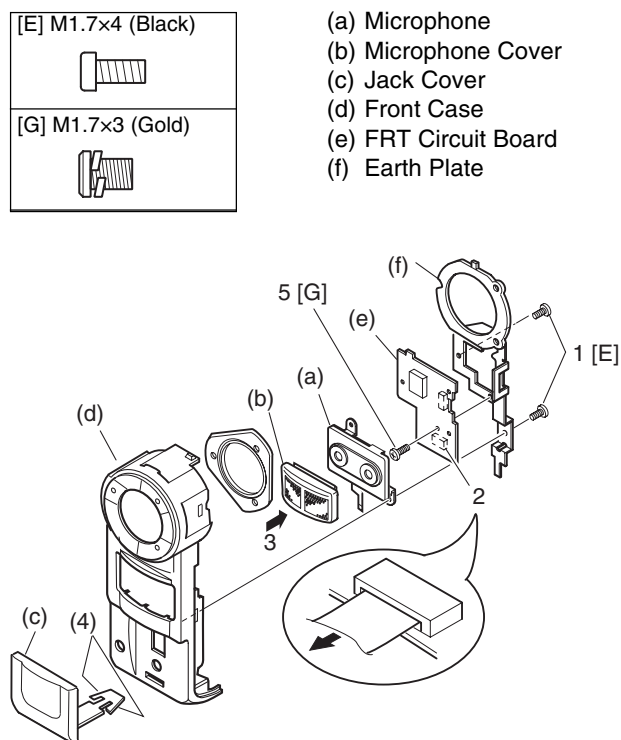5) Remove screw [G], and then remove the FRT circuit board from the earth plate.

[E] M1.7×4 (Black)

[G] M1.7×3 (Gold)

(a) Microphone
(b) Microphone Cover
(c) Jack Cover
(d) Front Case
(e) FRT Circuit Board
(f) Earth Plate

5 [G]

1 [E]

Fig. 5-3-7 Microphone, Microphone Cover, Jack Cover, Front Case, and FRT Circuit Board

5 - 6

(7) LCD Case U, MR Circuit Board, and Fulcrum Block (Fig. 5-3-8)

◆ LCD Case U (a)

1) Insert a fine-tipped screwdriver (e) into the screw hole in fulcrum block, and then turn the screw hole bracket 90° in the direction of the arrow.

2) Turn the fulcrum block 90° in the direction of the arrow.

3) Remove four screws [C].

4) Release the three tabs, and then remove the LCD case U in the direction of the arrow.

◆ MR Circuit Board (b)

5) Disconnect the MR circuit board from the LCD circuit board (d).

6) Remove the MR circuit board in the direction of the arrow. The MR circuit board is a film-like board: Do not bend or fold it.

◆ Fulcrum Block (c)

7) Disconnect the flat cable from the LCD circuit board.

8) Remove the fulcrum block in the direction of the arrow.

(a) LCD Case U
(b) MR Circuit Board
(c) Fulcrum Block
(d) LCD Circuit Board
(e) Screwdriver

[C] M1.7×4 (Silver)
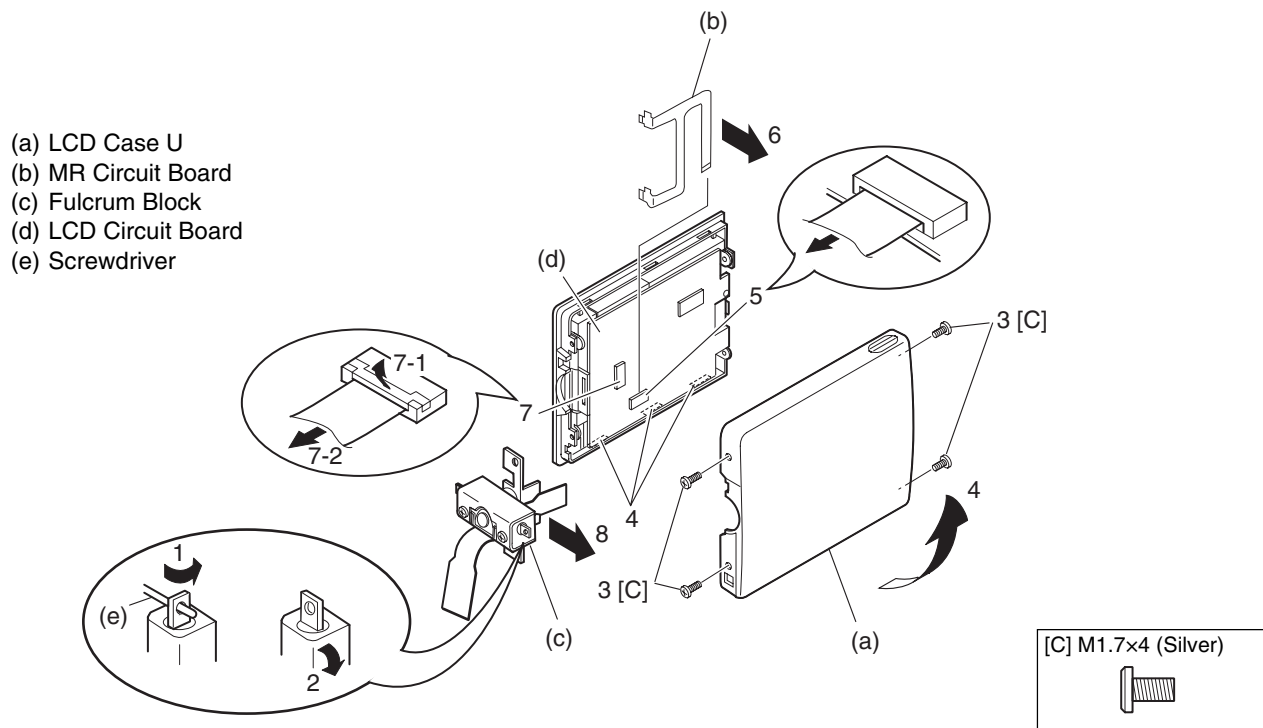
Fig. 5-3-8 LCD Case U, MR Circuit Board, and Fulcrum Block

(8) Disc Cover (Figs. 5-3-9, 5-3-10)

1) Remove four screws [X] and pull up the parts (m) of accessory shoe. After work, reinstall part [m] and screws [X] to the accessory shoe: The accessory shoe is set as a service part, including part [m] and screws [X].

2) Move the lock arm (b) in the direction of the arrow to open the disc cover (a).

3) Open the card slot cover (c).

4) Disconnect the flat cable (e) from MAN circuit board (d).

5) Remove four screws [D].

6) Remove the disc cover in the direction of the arrow: Be careful not to damage the flat cable (e) that extends from the disc cover.

■ Procedure and caution for reassembly

1) Reinstall the disc cover so that the hinge ① of R case fits into portion ② at the inside top of disc cover. (Fig. 5-3-10)

2) Pass the flat cable (e) extending from the disc cover through the gap between frame (g) and R case (h), and then connect it to the MAN circuit board (d). (Fig. 5-3-10)

(a) Disc Cover
(b) Lock Arm
(c) Card Slot Cover
(d) MAN Circuit Board
(e) Flat Cable
(f) Hinge of R Case
(g) Frame
(h) R Case
(j) Disc Drive Unit
(k) Loader
(m) Parts of Accessory Shoe
(n) Accessory shoe

Fig. 5-3-9 Disc Cover

[D] M1.6×2.5 (Black)

[X] M2×2.5 (Black)

Fig. 5-3-10 Disc Cover

5 - 8
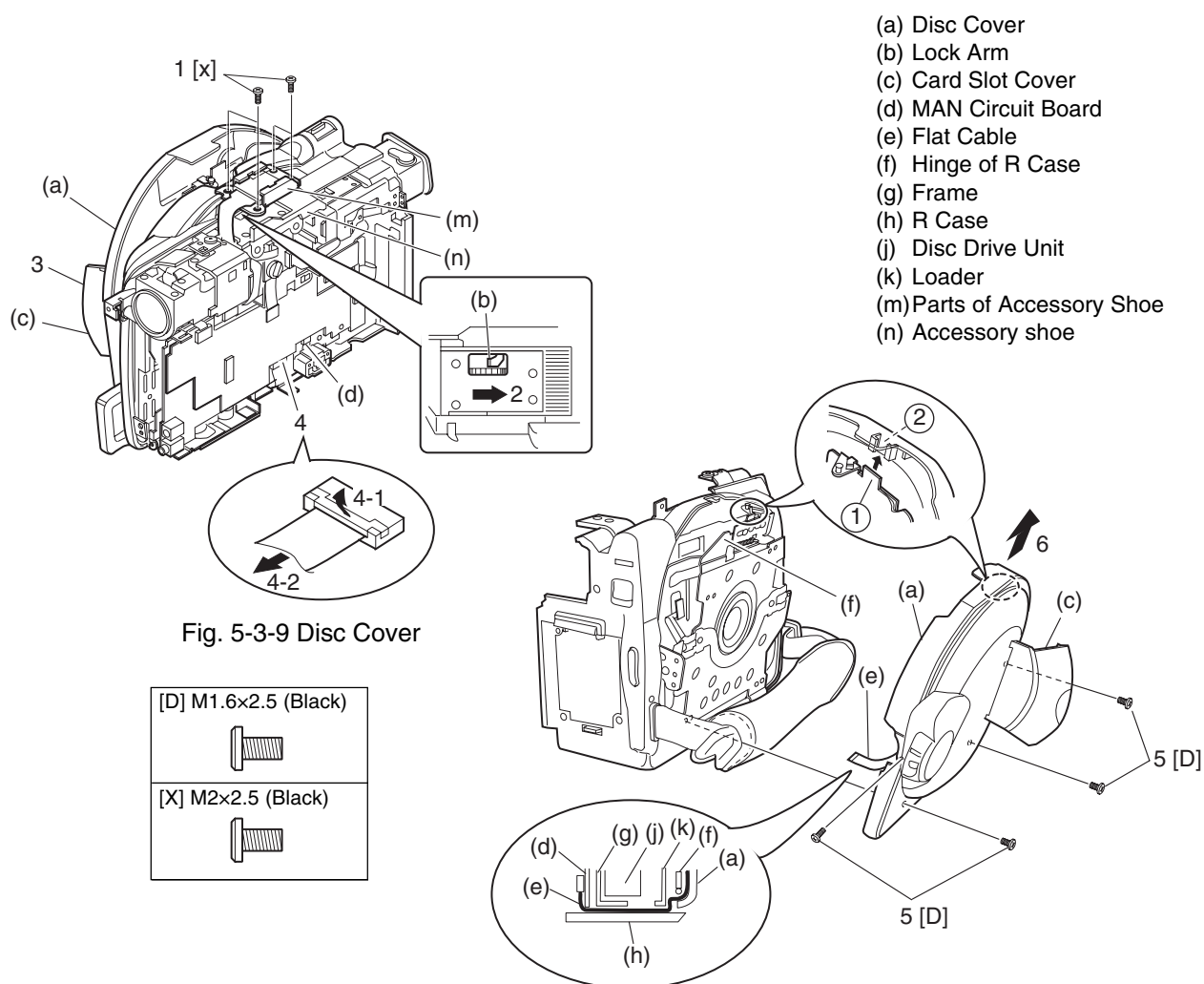
(9) USB Circuit Board, Rear Cover, and Hand Strap (Fig. 5-3-11)

◆ USB Circuit Board (a)

1) Remove screw [D].

2) Disconnect the flat cable from MAN circuit board (d), and then remove the USB circuit board assembled with USB holder (e) from the R block.

3) Remove the USB circuit board from USB holder in the direction of the arrow.

◆ Rear Cover (b) and Hand Strap (c)

4) Remove the hand strap from R block (f).

5) Remove screw [D] from the right of rear cover and screw [A] from the bottom of rear cover.

6) Remove screw [A].

7) Disconnect the two flat cables from MAN circuit board, and then remove the rear cover in the direction of the arrow.

8) Remove screw [D], screw [P] and screw [E], and then remove the hand strap and hand strap plate (g) from rear case.

(a) USB Circuit Board
(b) Rear Cover
(c) Hand Strap
(d) MAN Circuit Board
(e) USB Holder
(f) R Block
(g) Hand Strap Plate

[A] M1.7×4 (Black)

[D] M1.6×2.5 (Black)

[E] M1.7×4 (Black)

[P] M1.6×3 (Silver)
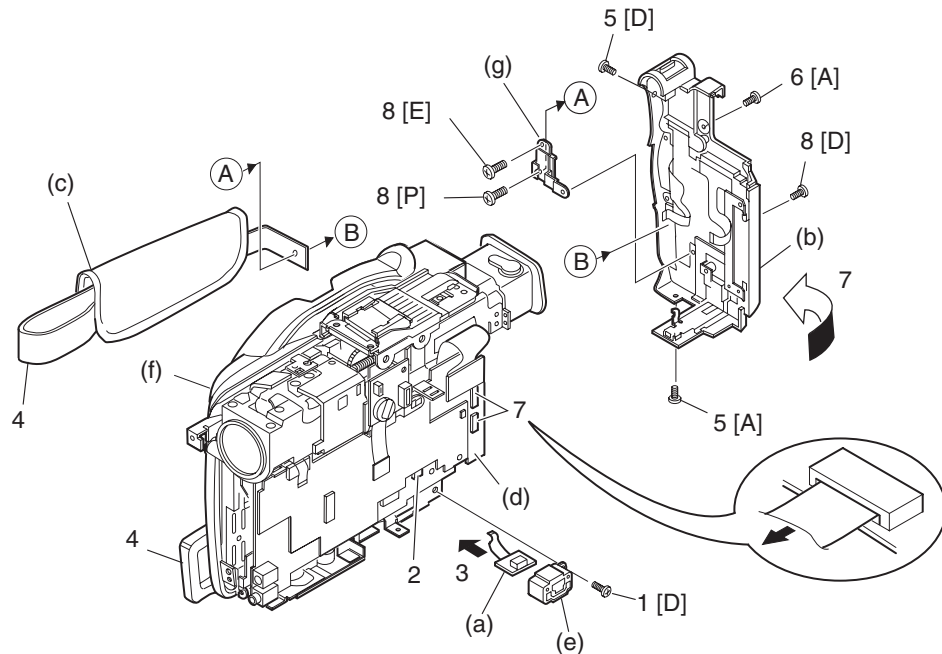
Fig. 5-3-11 USB Circuit Board, Rear Cover, and Hand Strap

(10) SHE Circuit Board, Accessory Shoe, and EVF Unit (Fig. 5-3-12)

◆ SHE Circuit Board (a) and Accessory Shoe (b)

1) Disconnect the SHE circuit board from AEL circuit board (d) in the direction of the arrow.

2) Disconnect the two flat cables from SHE circuit board.

3) Remove screw [G].

4) Remove two screws [K], and then remove the accessory shoe assembled with SHE circuit board from the R block.

5) Disconnect the SHE circuit board from accessory shoe in the direction of the arrow.

◆ EVF Unit (c)

6) Remove the EVF unit form the R block (e) in the direction of the arrow.

Note:

1) Take care when handling the EVF unit: The EVF unit contains the LCD panel and backlight, which are precision components. Subjecting the EVF unit to impact could result in a fault.

2) Do not disassemble the EVF unit: Doing so will cause a fault. Components in EVF unit are not assigned as service parts.

(a) SHE Circuit Board
(b) Accessory Shoe
(c) EVF Unit
(d) AEL Circuit Board
(e) R Block

[G] M1.7×3 (Gold)

[K] M1.6×2 (Gold)

Fig. 5-3-12 SHE Circuit Board, Accessory Shoe, and EVF Unit

5 - 10
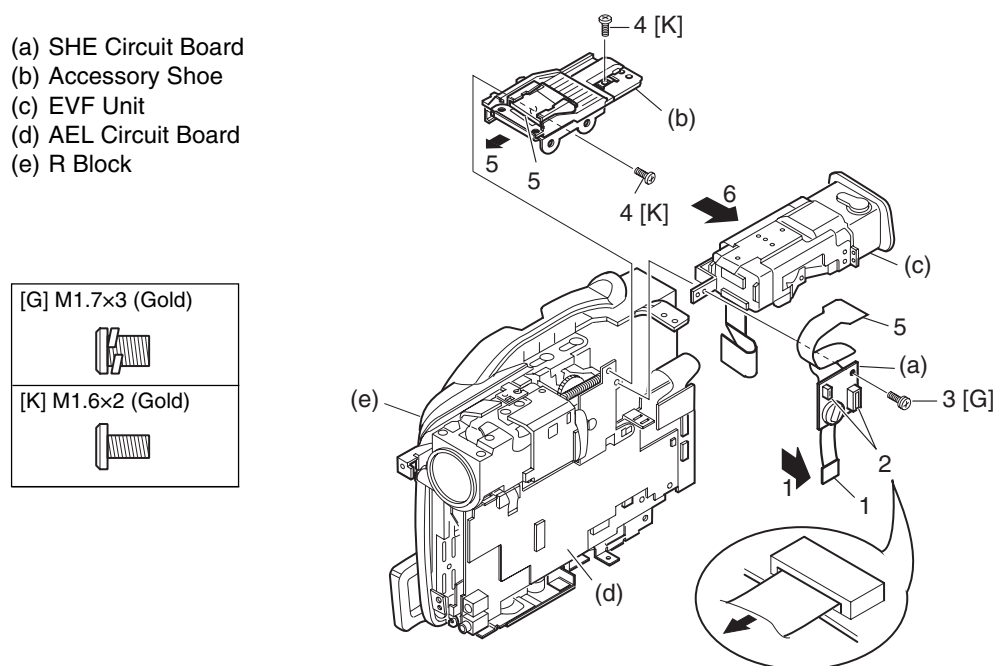
(11) AEL and MAN Circuit Boards (Fig. 5-3-13)

1) Disconnect the flat cable from AEL circuit board (a).
2) Disconnect the SHE circuit board (c) in the direction of the arrow from the AEL circuit board.
3) Disconnect the DRF circuit board (d) in the direction of the arrow from the MAN circuit board.
4) Disconnect the SEN circuit board (g) in the direction of the arrow from the MAN circuit board.
5) Disconnect the four flat cables from MAN circuit board (b).
6) Remove three screws [G].
7) Remove the AEL circuit board assembled with MAN circuit board in the direction of the arrow from the R block (e).
8) Remove the AEL circuit board in the direction of the arrow to disconnect it from MAN circuit board.

■ Procedure and caution for reassembly

Be sure to attach the heat sink rubber (f) when installing the MAN circuit board: Forgetting to attach the heat sink rubber could cause a fault.

(a) AEL Circuit Board
(b) MAN Circuit Board
(c) SHE Circuit Board
(d) DRF Circuit Board
(e) R Block
(f) Heat Sink Rubber
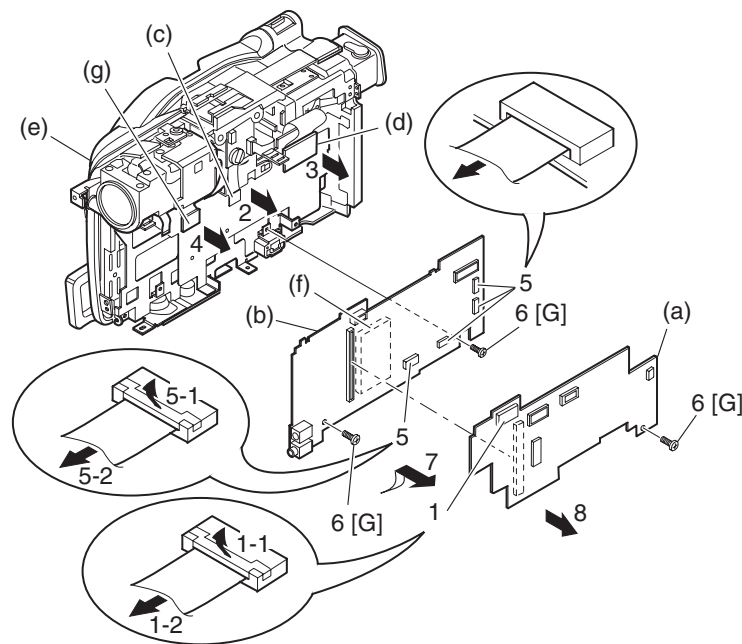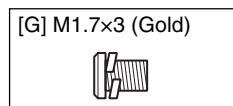(g) SEN Circuit Board

[G] M1.7×3 (Gold)

Fig. 5-3-13 AEL and MAN Circuit Boards

(12) Camera Block (Fig. 5-3-14)

1) Disconnect the SEN circuit board (b) from MAN circuit board (c) in the direction of the arrow.

2) Disconnect the flat cable from AEL circuit board (d).

3) Disconnect the GYR circuit board (e) from SHE circuit board (f).

4) Remove two screws [H].

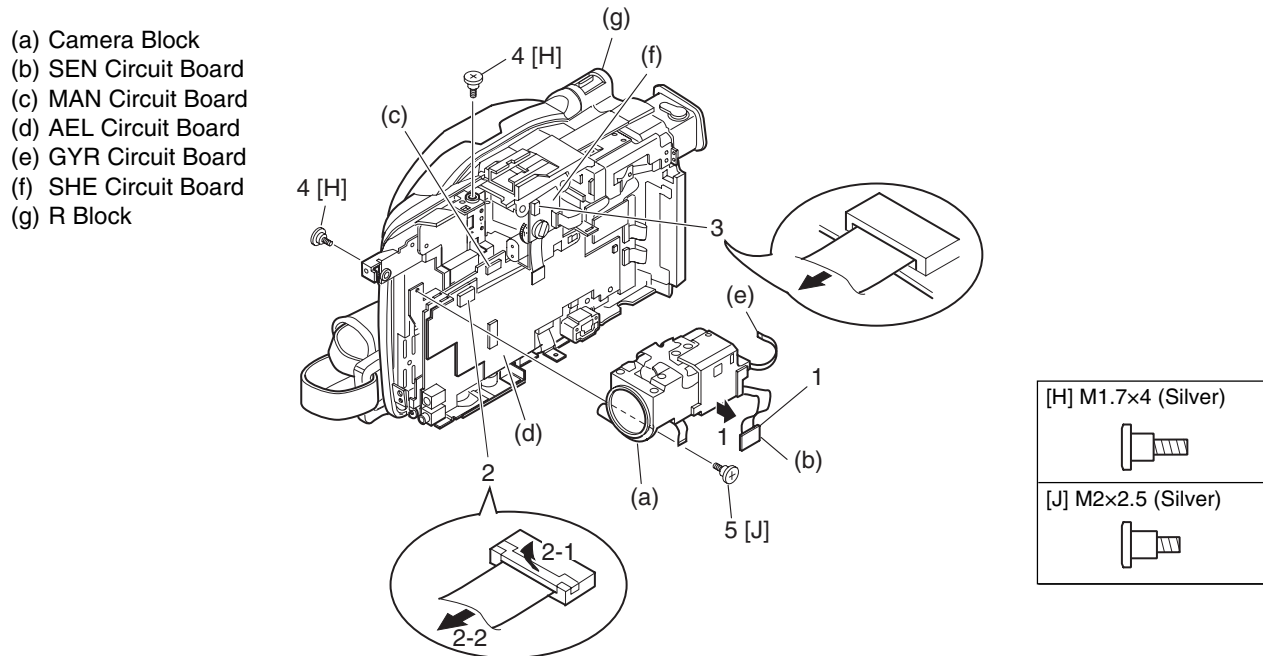5) Remove screw [J] and then remove the camera block (a) from R block (g).

(a) Camera Block
(b) SEN Circuit Board
(c) MAN Circuit Board
(d) AEL Circuit Board
(e) GYR Circuit Board
(f) SHE Circuit Board
(g) R Block

[H] M1.7×4 (Silver)

[J] M2×2.5 (Silver)

Fig. 5-3-14 Camera Block

(13) LCD Circuit Board, Backlight, LCD Unit , and LCD Case B (Fig. 5-3-15)

◆ LCD Circuit Board (a)

1) Unsolder the two points on LCD circuit board.
2) Disconnect the flat cable from LCD circuit board.
3) Remove screw [G], and then remove the LCD circuit board.

◆ Backlight (b), LCD Unit (c), and LCD Case B (d)

4) Release the two tabs on LCD frame (e), and then remove the LCD frame from LCD case B.
5) Remove the backlight and LCD unit from LCD case B (d).

Note:

The LCD unit and backlight are precision components: Take great care when handling them.
Subjecting them to impact could result in a fault.

(a) LCD Circuit Board
(b) Backlight
(c) LCD Unit
(d) LCD Case B
(e) LCD Frame

[G] M1.7×3 (Gold)

Fig. 5-3-15 LCD Circuit Board, Backlight, LCD Unit , and LCD Case B

5 - 13
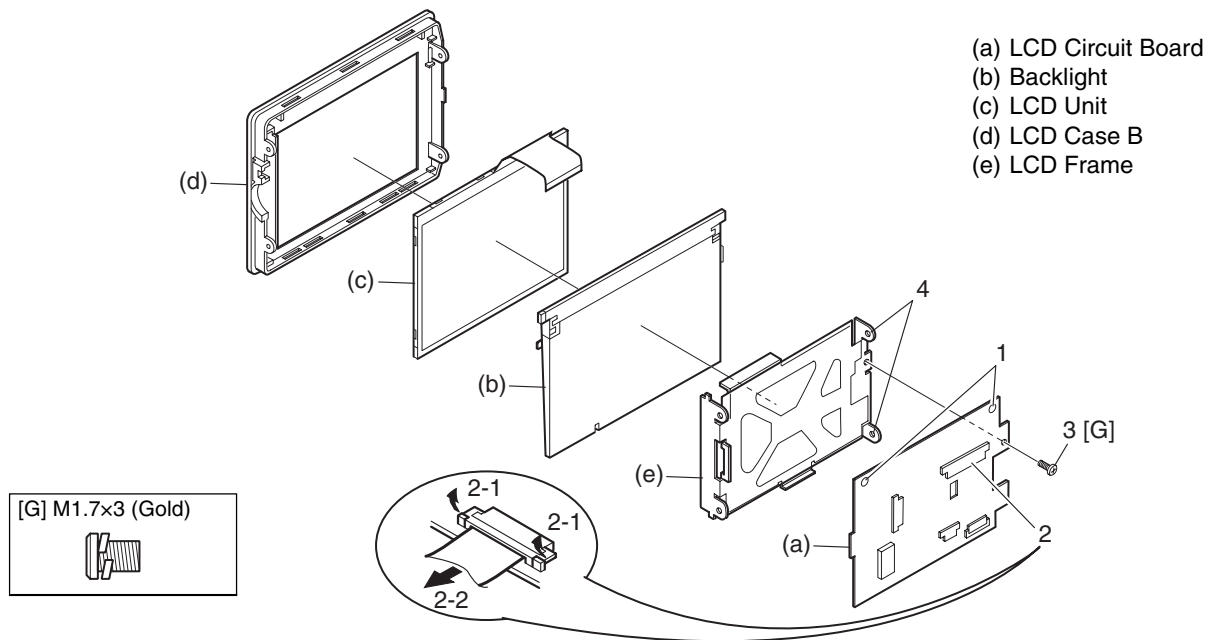
(14) Link Bracket, Drive Block, and R Case (Figs. 5-3-16, 5-3-17, 5-3-18)

◆ Link Bracket (a) (Fig. 5-3-16)

1)   Remove two screws [K], and then remove the link bracket.

◆ Drive Block (b) and R Case (c) (Figs. 5-3-16, 5-3-17, 5-3-18)

2)   Remove screw [D].

3)   Remove two screws [A] from the bottom of R case.

4)   Remove two screws [D] from the rear of R case.

5)   Remove screw [D] from front of R case.

6)   Remove screw [D] from top of R case and then remove the drive block from R case.

Note:

Take care when handling the drive block: The drive block contains the disc drive unit, which is a precision component. Do not subject the disc drive unit to impact, or allow dust to adhere to it: Doing so could cause a fault.

■ Procedure and caution for reassembly

Be sure to attach the heat sink rubbers (d) when installing the frame: Forgetting to attach the heat sink rubbers could cause a fault.
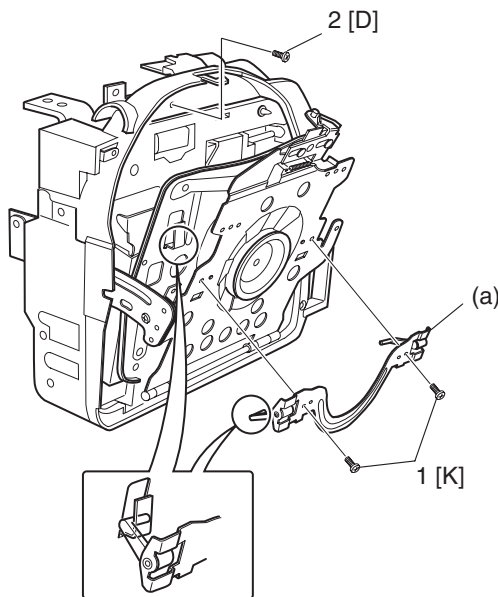
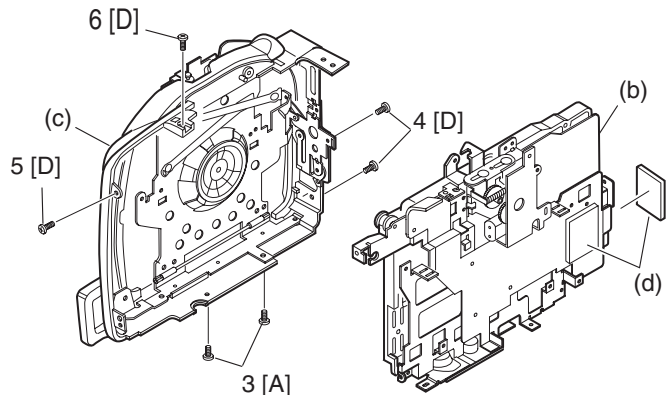Fig. 5-3-16 Link Bracket, Drive Block, and R Case

Fig. 5-3-17 Link Bracket, Drive Block, and R Case

Fig. 5-3-18 Link Bracket, Drive Block, and R Case

(a) Link Bracket
(b) Drive Block
(c) R Case
(d) Heat Sink Rubbers

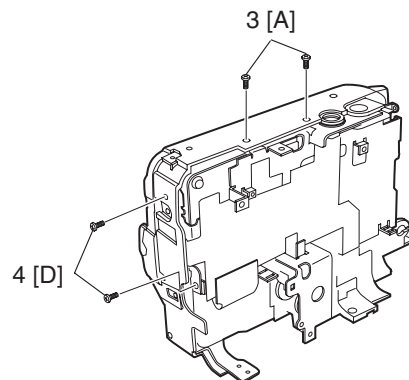[A] M1.7×4 (Black)

[D] M1.6×2.5 (Black)

[K] M1.6×2 (Gold)

(15) Fulcrum Cover U and Fulcrum Cover B (Fig. 5-3-19)

1) Remove two screws [D] and then remove the fulcrum cover U (a) and fulcrum cover B (b).
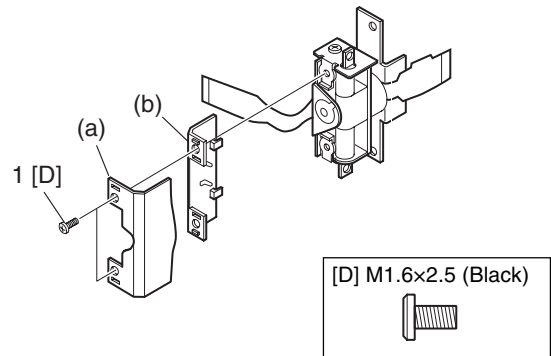
(a) Fulcrum Cover U
(b) Fulcrum Cover B

[D] M1.6×2.5 (Black)

Fig. 5-3-19 Fulcrum Cover U and Fulcrum Cover B

(16) GYR Circuit Board, Lens Frame, Lens Unit, SEN Circuit Board and Sensor (Fig. 5-3-20)

◆ GYR Circuit Board (a)

1) Remove screw [E], and then remove the lens frame (b) from GYR circuit board.

◆ Lens Frame (b)

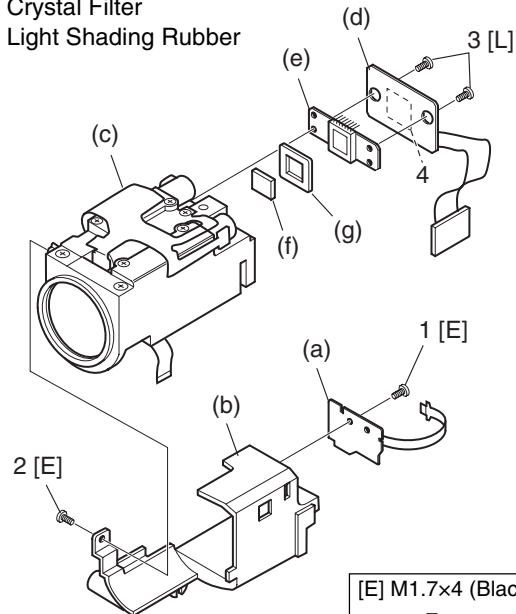2) Remove screw [E], and then remove the lens unit from lens frame.

◆ Lens Unit (c)

3) Remove two screws [L], and then remove the lens unit. When removing the lens unit, the crystal filter (f) and light shading rubber (g) will detach automatically: Be careful not to damage the crystal filter.

◆ SEN Circuit Board (d) and Sensor (e)

4) Unsolder fourteen points (terminals of sensor) on the SEN circuit board.

Note:
1) The lens unit is a precision component: Take great care when handling it. Do not subject the lens unit to impact, or allow dust to adhere to it: Doing so could cause a fault.
2) The crystal filter does not have any special orientation.

(a) GYR Circuit Board
(b) Lens Frame
(c) Lens Unit
(d) SEN Circuit Board
(e) Sensor
(f) Crystal Filter
(g) Light Shading Rubber

[E] M1.7×4 (Black)

[L] M1.7×5 (Sliver)

Fig. 5-3-20 GYR Circuit Board, Lens Frame, Lens Unit, SEN Circuit Board and Sensor

(17) Loader, DRF Circuit Board, Disc Drive Unit, and Lock Unit (Fig. 5-3-21)

◆ Loader (a)

1) Remove two screws [M], and then remove the loader from disc drive unit.

Note:

Do not subject the loader to undue force: If the loader is damaged, discs cannot be inserted or recognized.

◆ DRF Circuit Board (b) and Disc Drive Unit (c)

2) Remove three screws [N], and then separate the disc drive unit and frame (e). Be careful not to damage the flat cable between the DRV circuit board (f) and lock unit (d).

3) Disconnect the flat cable from the DRV circuit board, and then remove the frame assembled with lock unit from the disc drive unit.

4) Remove the DRF circuit board from DRV circuit board in the direction of the arrow. The DRF circuit board is a film-like board: Do not bend or fold it.

Note:

1) The disc drive unit is a precision component: Take great care when handling it. Do not subject the disc drive unit to impact, or allow dust to adhere to it: Doing so could cause a fault.

2) Do not disassemble the disc drive unit: Doing so will cause a fault. Components in disc drive unit are not assigned as service parts.

◆ Lock Unit (d)

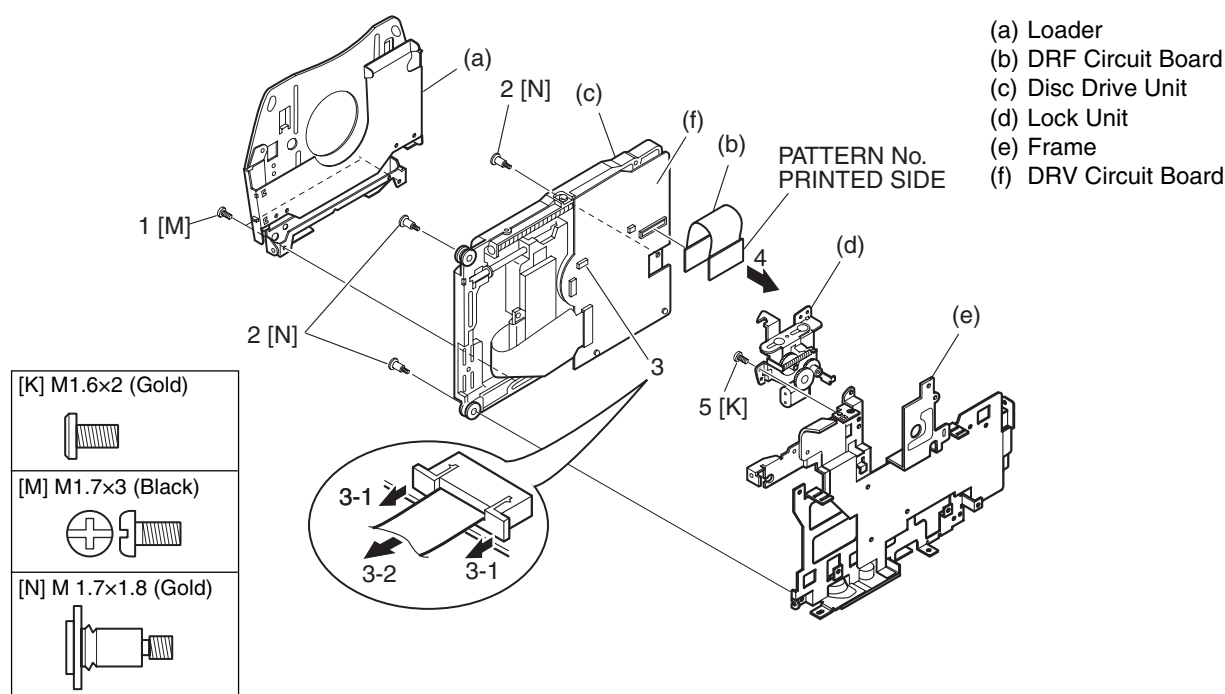5) Remove screw [K] and then remove the lock unit and frame.

(a) Loader
(b) DRF Circuit Board
(c) Disc Drive Unit
(d) Lock Unit
(e) Frame
(f) DRV Circuit Board

[K] M1.6×2 (Gold)
[M] M1.7×3 (Black)
[N] M 1.7×1.8 (Gold)

Fig. 5-3-21 Loader, DRF Circuit Board, Disc Drive Unit, and Lock Unit

6 │ Adjustment

6-1 Creating Reference Data

The reference data is necessary for adjustment: The adjustment program will not operate normally without it. Before adjustment, be sure to create the reference data, using the same model (with normal camera block) as the one to be adjusted.

See section 6-1-1 and subsequent sections for details.

Information:

1) The reference data is used to reduce the difference between environments of servicing site and factory (color temperature of light box, etc.). Using the reference data will increase adjustment accuracy.

2) The reference data is usually created once for each model because it is recorded on hard disk drive (HDD) of PC with the adjustment program. However, creating reference data again is necessary in the following cases:

a) When performing adjustment using a light box that is different from that used when the reference data was created.

b) When performing maintenance of the light box used when creating the reference data (replacing fluorescent light, etc.).

c) When the environment of workplace has changed because of movement or change in layout.

d) When deleting the folder containing the adjustment program from HDD.

3) The reference data is necessary for each model. However, common reference data can be used for DZ-MV380A and DZ-MV380E: The DZ-MV380E can be adjusted using reference data created for the DZ-MV380A, and vice versa.
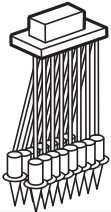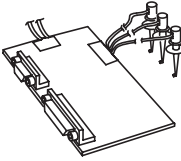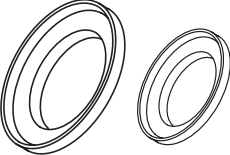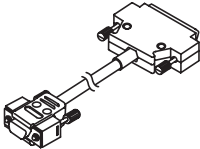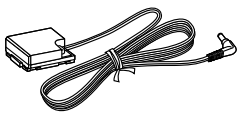

Restrictions:

If the same model with normal camera block as the one to be adjusted is not available, the reference data can be created by the following procedure. However, reference data created this way has been prepared at the factory, assuming the environment of service workplace, and may not be suitable for all service workplaces. Therefore, it is recommended that you create reference data using the same model with normal camera block as that to be adjusted.

1) Store the adjustment program on HDD, referring to "6-1-5 Storing or Deleting Adjustment Program".

2) Refer to the following table to check the reference data file name of the model to be adjusted.

3) Start up Explorer and open the refdata folder in map03w folder.

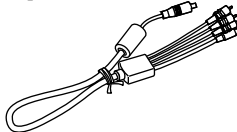4) Copy the file with the same name as the reference data file name checked in step 2) in refdata folder to map03w folder.

Model	Name of reference data file
DZ-MV350A	m350a.dat
DZ-MV350E	m350e.dat
DZ-MV380A	m380ae.dat
DZ-MV380E	

6-1-1 List of Jigs and Tools used when Creating Reference Data

NEW Adjustment floppy disk Note: Create the data using the adjustment data downloaded from Intranet. If downloading is not possible, obtain the floppy disk with Parts No. TP13873	**NEW** Skylark connection jig Parts No. TP14161
Personal computer (PC) All of the following OS must operate normally on it.[1] OS: Windows 95/98/98 Second Edition/Me/2000 Professional/XP/NT4.0	
C12 light balancing filter (Diameter: 46mm) Parts No. 7099369	DSP-R jig Parts No. 7099448
Step-up rings (Diameter 30.5 - 37 mm and 37 - 46 mm) [Generally available] Note: The filter diameter of DVD video camera/recorder is 30.5 mm: When using a filter with a diameter of 46 mm, use a step-up rings for better workability.	
RS-232C cable (9-pin or 25-pin straight type) [Generally available]	AV/S input/output or output cable [Accessory: Parts No. EW12432]
DZ-ACS1 AC adapter/charger [Accessory][2]	Power cable for AC adapter/charger [Accessory][2] Example
DC power cord [Accessory: Parts No. EV11012]	*1: The adjustment program used on DVD video camera/recorder is exclusively for Windows 95/98/98 Second Edition/Me/2000 Professional/XP/NT4.0: The program cannot be run on MS-DOS. *2: The part numbers of AC adapter/charger and power cable are different depending on the destination: Refer to the "Replacement Parts List" for the part numbers.

6-1-2 Power Supply and Materials for Creating Reference Data

1) DVD video camera/recorder that is the same model as the one to be adjusted and whose camera
    block is operating normally.

> Note:
> It is recommended that you use a brand-new unit of the same model when creating the reference
> data. If such a unit is not available, use the same model of the DVD video camera/recorder that is
> received from customer for repairing fault in disc drive that is other than in the camera block,
> and one where there is no problem in recording of camera image and the zoom is operating
> normally.

2) 3100 K light box (maintenance is necessary)
3) Color monitor (color TV with AV input jacks)
4) DC power supply for DSP-R jig (5 V/1 A)

6-1-3 Connections when Creating Reference Data

Connect the DVD video camera/recorder (for creating reference data), jigs and test equipment as
shown in Fig. 6-1-1.

> **Prohibition:**
> Assemble the DVD video camera/recorder completely, and create reference data with only the
> adjustment cover removed (see Fig. 6-1-1).
> Do not attempt to create reference data with the DVD video camera/recorder disassembled: Doing so
> is very dangerous because the DVD video camera/recorder incorporates high-voltage circuits and a
> laser emitter block.

> Information:
> 1) Refer to "(1) Adjustment cover" in "5-3 Disassembly" for how to remove the adjustment cover.
> 2) Set the light box 30-50 cm away from DVD video camera/recorder, and eliminate any effects
>   from surrounding light, except where such designation is given.
> 3) Set the lens surface of DVD video camera/recorder in parallel with the surface of light box as far
>   as possible, and adjust the focus.
> 4) Use a small tripod to fix the DVD video camera/recorder, making certain it does not move during
>   creation of reference data.
> 5) Use a light box whose color temperature is controlled with no flickering: Using an inappropriate
>   light box will interference with work.

Fig. 6-1-1 Connections when Creating Reference Data
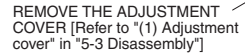
6-1-4 Settings when Creating Reference Data

When the connections for creating reference data are complete, set the DVD video camera/recorder and test equipment as follows:

1) Make sure that no disc or card is inserted: Neither is necessary when creating reference data.
2) Set the power switch to "VIDEO", and set the DVD video camera/recorder to the recording pause status: After that operate the DVD video camera/recorder while watching the LCD monitor screen.
3) Press the MENU button to display the menu screen.
4) Use the joystick to choose "Initial Setup", and then press the playback/pause button (the center of joystick).
5) Use the joystick to choose "Reset", and then press the playback/pause button: The screen for verifying reset will appear.
6) Use the joystick to choose "ENTER", and then press the playback/pause button: Reset will be executed.
7) When reset is complete, operate the joystick by the above procedure to set the items on menu screens as follows:
 a) Specify Dig. Zoom "Off" in Camera Functions Setup menu.
 b) Specify OSD Output "Off" in Record Functions Setup menu.
 c) Specify Demo Mode "Off" in Initial Setup menu. Failing to specify Demo Mode "Off" will interfere with adjustment.
8) Press the MENU button to restore the normal display.

Information:

The following table shows the menu status after the above settings:

Item	Setting
Camera Functions Setup	
Program AE	Auto
White Balance	Auto
EIS	On
Dig. Zoom	Off
MIC Filter	Off
Recording Functions Setup	
VIDEO Mode	FINE
Quality	FINE
Input Source	CAMERA
PHOTO Input	Field
Self Timer	Off
OSD Output	Off

Item	Setting
Date Setup	
Date Mode	month/day/year
Date Set	-------
LCD Setup	
Brightness	Center
Color Level	Center
Initial Setup	
Beep	On
Power Save	Off
Record LED	On
Language	English
Demo Mode	Off

6-1-5 Storing or Deleting Adjustment Program

> Information:
> The adjustment program also includes a program for creating reference data.

(1) Storing
1) Start the PC.
2) Start Explorer and create a new folder in HDD of PC. The name "map03w" is recommended for
    the folder: If a folder with the same name exists, give the folder a similar name that is easily
    understandable.

> Note:
> Be sure to manage the adjustment programs for Windows and MS-DOS in different folders:
> Managing them in the same folder will interfere with adjustment.

3) Copy all the folders and files on adjustment floppy disk to the map03w folder.

(2) Deleting
If it is necessary to delete the adjustment program from hard disk drive (HDD) of PC, delete the
map03w folder that was created during storage.

6-1-6 Starting and Terminating Reference Data Creation Program

The reference data creation program will not start unless the connections for creating reference data
are correct, and the DVD video camera/recorder or DSP-R jig is powered: Make sure that the
connections are correct, the power switch on DVD video camera/recorder is set to "VIDEO", and the
DC power supply for DSP-R jig is turned on.
For subsequent operation, operate the PC mouse while watching the PC monitor screen.

> Information:
> 1) Display ×××× on subsequent PC screen shows the model name.
> 2) The numbers on PC screens show the operational procedure.

(1) Start
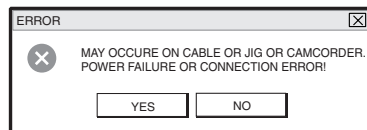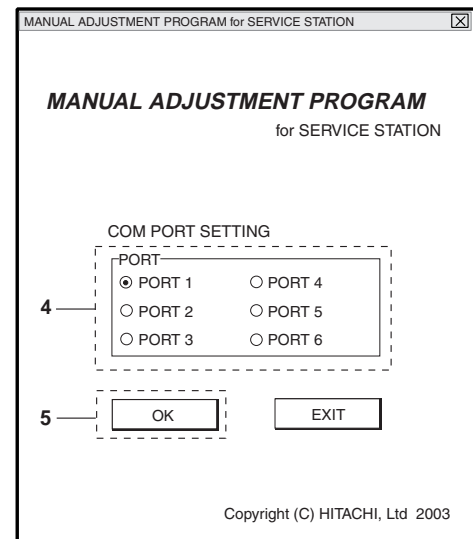1) Start the PC. If the PC has already started, terminate all other applications.
2) Start Explorer, and double-click the "SETUPforMAP2003W.EXE" file in map03w folder to start
    the program.
3) Once the program has started, the COMMUNICATION PORT SETTING screen will appear.

4) Check the communication port to which the RS-232C cable is connected, and then choose the radio button of corresponding port on COMMUNICATION PORT SETTING screen.

5) Click the OK button on the COMMUNICATION PORT SETTING screen, and then proceed with the MODEL SELECT screen.

Note:

If the POWER OR CONNECTION ERROR dialog appears , perform the following procedure:

1) Make sure that the connections for adjustment are correct, and that the DVD video camera/recorder or DSP-R jig is powered.

2) If there is a problem in connections or power supply, take care of the problem, and then click the YES button to proceed with the MODEL SELECT screen. If there is no problem in connections or power supply, the indication will be that the incorrect communication port has been chosen. Click the NO button in POWER OR CONNECTION ERROR dialog to proceed with the COM PORT ERROR dialog: Click the OK button, and then choose the correct communication port.

POWER OR CONNECTION ERROR dialog

ERROR	⊠
✖ MAY OCCURE ON CABLE OR JIG OR CAMCORDER. POWER FAILURE OR CONNECTION ERROR!	
YES NO	

COM PORT ERROR dialog

ERROR	⊠
⚠ COM PORT ERROR	
OK	

COMMUNICATION PORT SETTING screen

MANUAL ADJUSTMENT PROGRAM for SERVICE STATION	⊠

MANUAL ADJUSTMENT PROGRAM
for SERVICE STATION

COM PORT SETTING

┌PORT─────────────
4 ─── ⊙ PORT 1   ○ PORT 4
      ○ PORT 2   ○ PORT 5
      ○ PORT 3   ○ PORT 6

5 ─── OK   EXIT

Copyright (C) HITACHI, Ltd 2003

6) Choose the radio button of corresponding model name in MODEL SELECT screen.

7) Click the ENTER button in MODEL SELECT screen, and then proceed with the SETUP MENU screen. Refer to next item for subsequent operations. If there is an error in model selection, the FILE HANDLE ERROR dialog will appear. Click the OK button, and then choose the correct model.

Note:

If the FILE HANDLE ERROR dialog appears when the correct model has been chosen, obtain (download) the newest adjustment program, and then start over again. If the FILE HANDLE ERROR dialog still appears with the newest adjustment program, check with the factory.

(2) Termination

1) Click the RETURN button on MENU screen of program to return to the MODEL SELECT screen.

2) Click the EXIT button on the MODEL SELECT screen.

Information:

If PC does not accept any operation during creation of reference data, or the program halts, perform the following procedure:

1) Set the power switch of DVD video camera/recorder to "POWER OFF".

2) Turn off the DC power supply for DSP-R jig.

3) Simultaneously press the Ctrl, Alt and Delete keys on PC keyboard to restart the PC.

4) After the PC restarts, restart the program.

MODEL SELECT screen.
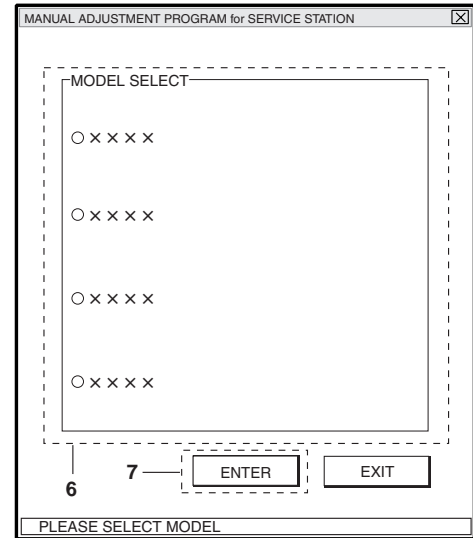
SETUP MENU screen.
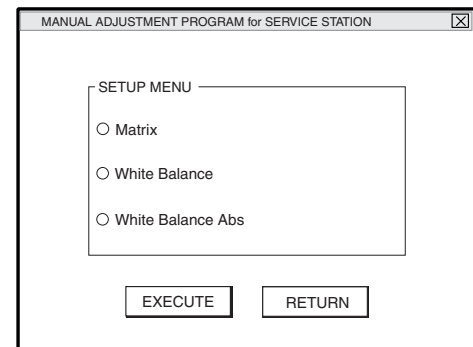
FILE HANDLE ERROR dialog

6-1-7 Creating Reference Data

Start the setup program referring to "6-1-6 Starting and Terminating Reference Data Creation Program". For subsequent operation, operate the PC mouse while watching the PC monitor screen.

Information:

It takes approx. 20 minutes to create reference data.

The following shows the times required for each item:

    Matrix: Approx. 10 minutes

    White Balance: Approx. 10 minutes

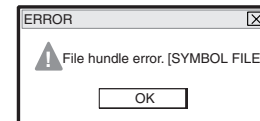   White Balance Abs: Approx. 30 seconds

---

◆ Preparation:

Point at light box without chart, filling the screen.

Prepare the C12 light balancing filter (step-up rings):

Attach it during setup.

◆ Procedure:

 1) Check MATRIX on the SETUP MENU screen.

 2) Click the EXECUTE button on SETUP MENU screen to start setup.

 3) The ATTACH THE FILTER dialog will appear during setup. Attach the C12 light balancing filter over the lens of DVD video camera/recorder, and then click the OK button in ATTACH THE FILTER dialog.

 4) The REMOVE THE FILTER dialog will appear again during setup.

   Remove the C12 light balancing filter from the lens of DVD video camera/recorder, and then click the OK button in REMOVE THE FILTER dialog.

   After that, the ATTACH THE FILTER dialog and REMOVE THE FILTER dialog may occasionally appear: Reattach the C12 light balancing filter and remove it each time.

 5) When setup is complete, the SETUP FINISHED dialog will appear: Click the OK button in dialog to restore the SETUP MENU screen.

   When setup is complete with the C12 light balancing filter attached, remove the C12 light balancing filter.

 6) Check WHITE BALANCE on the SETUP MENU screen.

 7) Repeat steps 2)-5).

SETUP MENU screen.
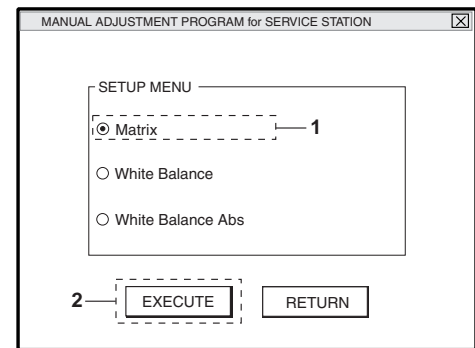
ATTACH THE FILTER dialog
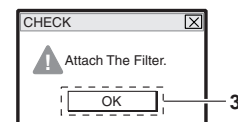
REMOVE THE FILTER dialog
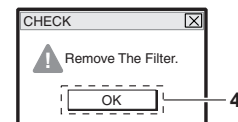
SETUP FINISHED dialog
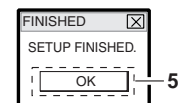
SETUP MENU screen.
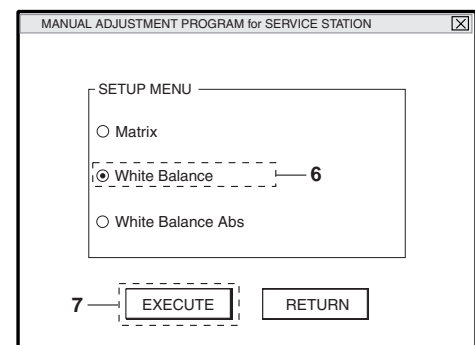
8) Check WHITE BALANCE ABS on the SETUP MENU
   screen.
9) Repeat steps 2)-5).
10) Click the RETURN button on SETUP MENU screen.
11) The ALL SETUP FINISH dialog will appear: Click the
    OK button to complete the creation of reference data.

Note:

Neither Matrix, White Balance nor White Balance Abs in
SETUP MENU can be executed independently. Be sure to
execute all items at the same time.
If you click the RETURN button on the SETUP MENU
screen with an unfinished item, the EXECUTE OTHER
ITEMS dialog will appear. Click the OK button in
EXECUTE OTHER ITEMS dialog, and then execute the
unfinished items.

EXECUTE OTHER ITEMS dialog

CONTINUE   ⊠
EXECUTE OTHER ITEMS.
        OK

SETUP MENU screen.

MANUAL ADJUSTMENT PROGRAM for SERVICE STATION   ⊠

SETUP MENU

○ Matrix

○ White Balance

◉ White Balance Abs ——— **8**

9 —— EXECUTE   RETURN —— **10**

ALL SETUP FINISH dialog

FINISHED   ⊠
ALL SETUP FINISHED.
      OK ——— **11**

6 - 10

6-2 Setups for Adjustment

6-2-1 Checking Reference Data

Before starting adjustment, check whether it will be necessary to create the reference data or not, referring to the flowchart below:
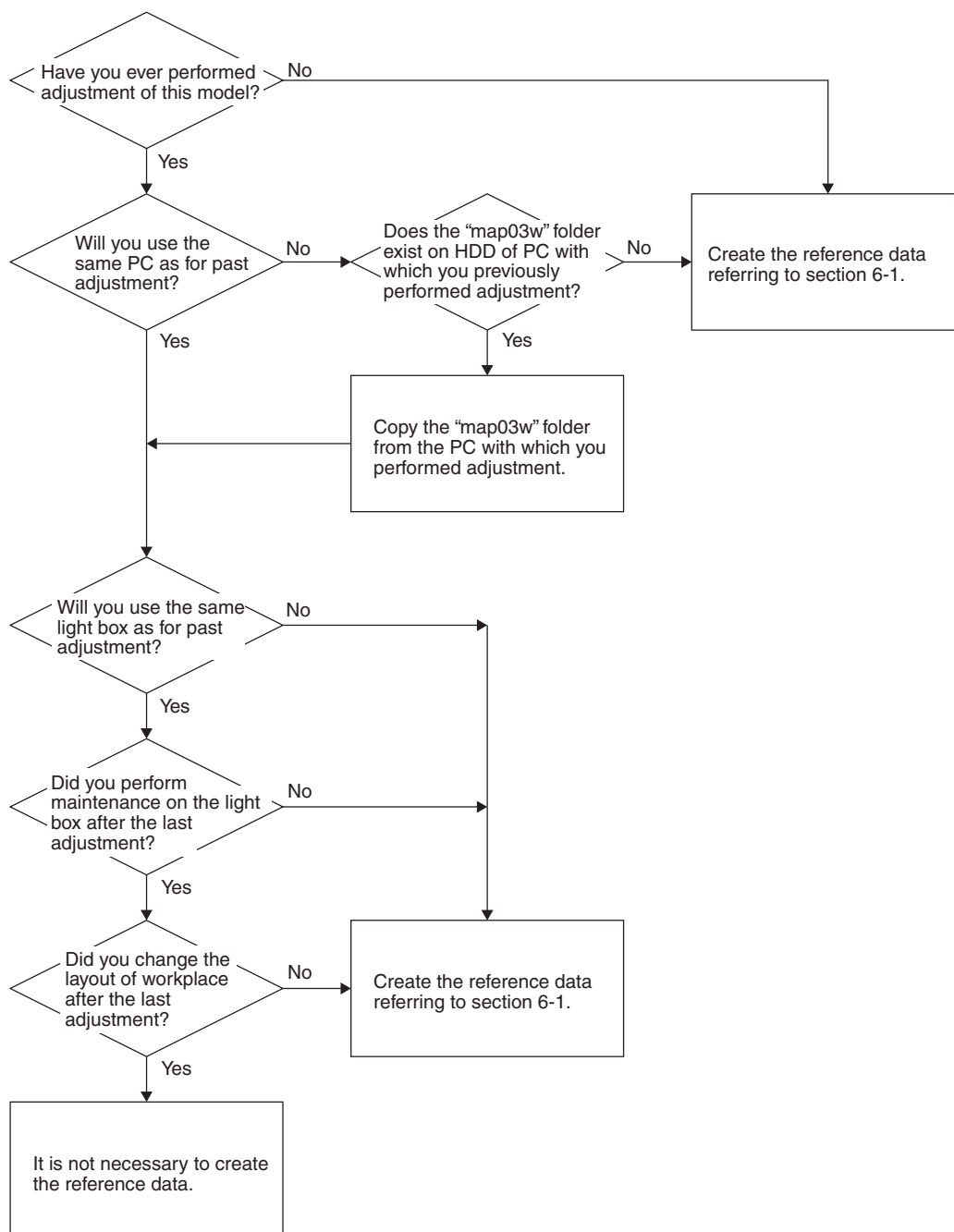
Fig. 6-2-1

6-2-2 List of Jigs and Tools for Adjustment

This list is the same as when creating reference data: Refer to "6-1-1 List of Jigs and Tools when Creating Reference Data".

6-2-3 Test Equipment, Power Supply and Charts for Adjustment

1) Color bar chart
2) 3100 K light box (maintenance is necessary)
3) Backfocus chart
4) Color monitor (color TV with AV input jacks)
5) Oscilloscope
6) Vectorscope
7) Digital voltmeter
8) Frequency counter
9) DC power supply for DSP-R jig (5 V/1 A)

Color Bar Chart
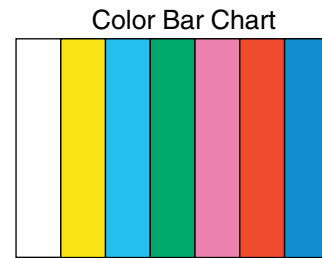
Backfocus Chart
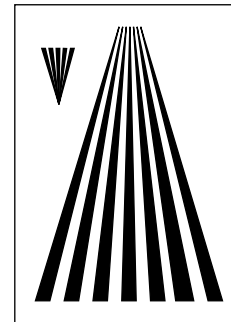
Information:

It is recommended that you use a vectorscope when performing the chroma gain adjustment.

You can use an oscilloscope instead: Note, however, that the adjustment accuracy will be lower.

6-2-4 Connections for Adjustment

Connect the DVD video camera/recorder, jigs and test equipment as shown in the Fig. 6-2-2, and point the DVD video camera/recorder at the specified subjects (light box/chart) for each adjustment item.

Prohibition:

Assemble the DVD video camera/recorder completely, and perform adjustment with only the adjustment cover removed (see Fig. 6-2-2).

Do not attempt to perform any adjustment with the DVD video camera/recorder disassembled: Doing so is very dangerous because the DVD video camera/recorder incorporates high-voltage circuits and a laser emitter block.

Information:

1) Refer to "(1) Adjustment cover" in "5-3 Disassembly" for how to remove the adjustment cover.
2) Set the light box/chart 30-50 cm away from DVD video camera/recorder, and eliminate any effects from surrounding light, except where such designation is given.
3) Set the lens surface of DVD video camera/recorder in parallel with the surface of light box/chart as far as possible, and adjust the focus.
4) Use a small tripod to fix the DVD video camera/recorder, making certain it does not move during adjustment.
5) Use light box whose color temperature is controlled with no flickering, for adjustment. Using an inappropriate light box will interference with adjustment.
6) Be sure to connect the video output of DVD video camera/recorder to the video input jack of color monitor, which is usually terminated by 75 ohm: If the video output is not terminated by 75 ohm, the video output value cannot be measured correctly.
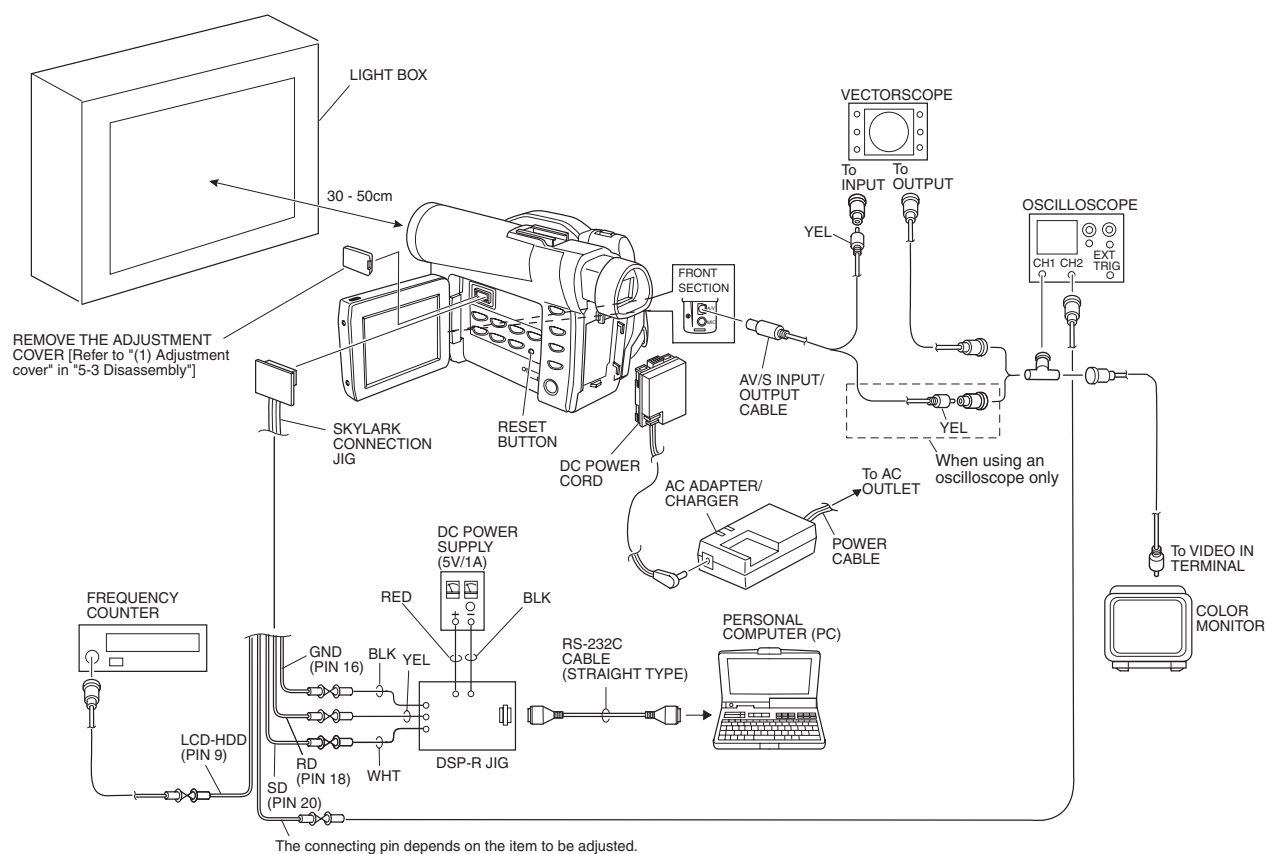
Fig. 6-2-2 Connections for Adjustment

6-2-5 Settings for Adjustment

When the connections for adjustment are complete, set the DVD video camera/recorder and test equipment as follows:

(1) Setting the DVD video camera/recorder

> Information:
>
> This item is the same as when creating reference data.

1) Make sure that no disc or card is inserted: Neither is necessary for adjustment.
2) Set the power switch to "VIDEO", and set the DVD video camera/recorder to the recording pause status: After that operate the DVD video camera/recorder while watching the LCD monitor screen.
3) Press the MENU button to display the menu screen.
4) Use the joystick to choose "Initial Setup", and then press the playback/pause button (the center of joystick).
5) Use the joystick to choose "Reset", and then press the playback/pause button: The screen for verifying reset will appear.
6) Use the joystick to choose "ENTER", and then press the playback/pause button: Reset will be executed.
7) When reset is complete, operate the joystick by the above procedure to set the items on menu screens as follows:
   a) Specify Dig. Zoom "Off" in Camera Functions Setup menu.
   b) Specify OSD Output "Off" in Record Functions Setup menu.
   c) Specify Demo Mode "Off" in Initial Setup menu. Failing to specify Demo Mode "Off" will interfere with adjustment.
8) Press the MENU button to restore the normal display.

> Information:
>
> The following table shows the menu status after the above settings:
>
> | Item | Setting | | Item | Setting |
> |------|---------|---|------|---------|
> | Camera Functions Setup | | | Date Setup | |
> | Program AE | Auto | | Date Mode | month/day/year |
> | White Balance | Auto | | Date Set | ------- |
> | EIS | On | | LCD Setup | |
> | Dig. Zoom | Off | | Brightness | Center |
> | MIC Filter | Off | | Color Level | Center |
> | Recording Functions Setup | | | Initial Setup | |
> | VIDEO Mode | FINE | | Beep | On |
> | Quality | FINE | | Power Save | Off |
> | Input Source | CAMERA | | Record LED | On |
> | PHOTO Input | Field | | Language | English |
> | Self Timer | Off | | Demo Mode | Off |
> | OSD Output | Off | | | |

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(2) Setting test equipment

The names of switches, etc. of test equipment may vary depending on the manufacturer and model. Some switches in addition to those shown below may have to be set: See the instruction manual of test equipment for details.

1) Oscilloscope
  a) Probe: 10:1
  b) V-MODE: CH1 (except where some other designation is given)
  b) TIME/DIV: 10 or 20 µs (except where some other designation is given)
  c) VOLTS/DIV: Change depending on the measurement object
  d) TRIGGER SOURCE: CH1 (except where some other designation is given)
  e) AC/DC/GND: AC
2) Vectorscope
  a) SATURATION: 75%

6-2-6 Starting and Terminating Adjustment Program

The adjustment program will not start unless the connections for adjustment are correct, and the DVD video camera/recorder or DSP-R jig is powered. Make sure that the connections are correct, the power switch on DVD video camera/recorder is set to "VIDEO", and the DC power supply for DSP-R jig is turned on.
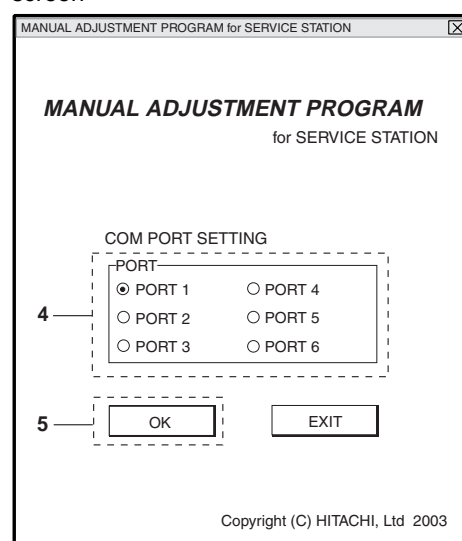

Information:
1) Display ×××× on subsequent PC screen shows the model name.
2) The numbers on PC screens show the operational procedure.

---

(1) Start
1) Start the PC. If the PC has already started, terminate all other applications.
2) Start Explorer, and double-click the "MAP2003W.EXE" file in map03w folder to start the adjustment program.
3) Once the adjustment program has started, the COMMUNICATION PORT SETTING screen will appear.
4) Check the communication port to which the RS-232C cable is connected, and then choose the radio button of corresponding port on COMMUNICATION PORT SETTING screen.
5) Click the OK button on the COMMUNICATION PORT SETTING screen, and then proceed with the MODEL SELECT screen.

COMMUNICATION PORT SETTING screen

```
┌─────────────────────────────────────────────┐
│ MANUAL ADJUSTMENT PROGRAM for SERVICE STATION  [X] │
│                                                │
│                                                │
│        MANUAL ADJUSTMENT PROGRAM               │
│                       for SERVICE STATION      │
│                                                │
│                                                │
│          COM PORT SETTING                      │
│        ┌─PORT────────────────────────┐         │
│        │ ◉ PORT 1    ○ PORT 4        │         │
│   4 ── │ ○ PORT 2    ○ PORT 5        │         │
│        │ ○ PORT 3    ○ PORT 6        │         │
│        └────────────────────────────┘         │
│        ┌ ─ ─ ─ ─ ─ ─┐                          │
│   5 ── │    OK       │        EXIT             │
│        └ ─ ─ ─ ─ ─ ─┘                          │
│                                                │
│              Copyright (C) HITACHI, Ltd 2003   │
└─────────────────────────────────────────────┘
```

Note:
If the POWER OR CONNECTION ERROR dialog appears , perform the following procedure:
1) Make sure that the connections for adjustment are correct, and that the DVD video camera/recorder or DSP-R jig is powered.
2) If there is a problem in connections or power supply, take care of the problem, and then click the YES button to proceed with the MODEL SELECT screen.
   If there is no problem in connections or power supply, the indication will be that the incorrect communication port has been chosen. Click the NO button in POWER OR CONNECTION ERROR dialog to proceed with the COM PORT ERROR dialog: Click the OK button, and then choose the correct communication port.

POWER OR CONNECTION ERROR dialog

```
┌────────────────────────────────────┐
│ ERROR                          [X] │
│  ⊗   MAY OCCURE ON CABLE OR JIG OR CAMCORDER. │
│      POWER FAILURE OR CONNECTION ERROR!       │
│         YES          NO            │
└────────────────────────────────────┘
```

COM PORT ERROR dialog

```
┌────────────────────────────┐
│ ERROR                  [X] │
│  ⚠    COM PORT ERROR       │
│      OK                    │
└────────────────────────────┘
```

6) Choose the radio button of corresponding model name in MODEL SELECT screen.

7) Click the ENTER button in MODEL SELECT screen, and then proceed with the ADJUST MENU screen. Start of the adjustment program is now complete. Refer to "6.3 Adjustment Procedure" for subsequent operations.

If there is an error in model selection, the FILE HANDLE ERROR dialog will appear. Click the OK button, and then choose the correct model.

Note:

If the FILE HANDLE ERROR dialog appears when the correct model has been chosen, obtain (download) the newest adjustment program, and then start over again.

If the FILE HANDLE ERROR dialog still appears with the newest adjustment program, check with the factory.

(2) Termination

1) Click the RETURN button on MENU screen of adjustment program to return to the MODEL SELECT screen.

2) Click the EXIT button on the MODEL SELECT screen.

Information:

If PC does not accept any operation during adjustment, or the adjustment program halts, perform the following procedure:

1) Set the power switch of DVD video camera/recorder to "POWER OFF".

2) Turn off the DC power supply for DSP-R jig.

3) Simultaneously press the Ctrl, Alt and Delete keys on PC keyboard to restart the PC.

4) After the PC restarts, restart the adjustment program.

MODEL SELECT screen.
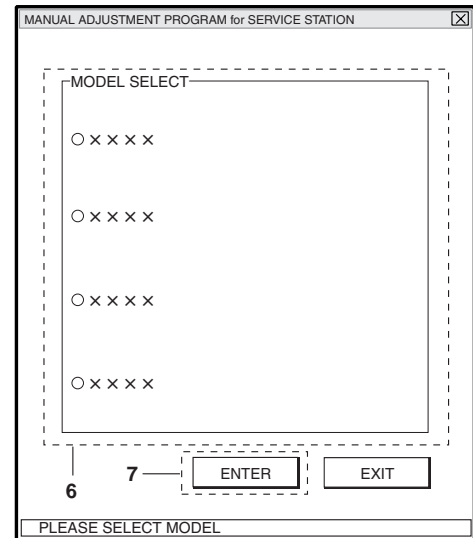
ADJUST MENU screen.

FILE HANDLE ERROR dialog

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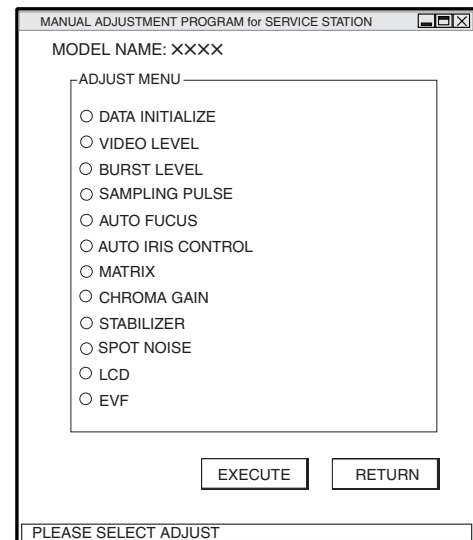
6-3 List of Adjustment Items

6-3-1 Adjustment Program Hierarchy Diagram
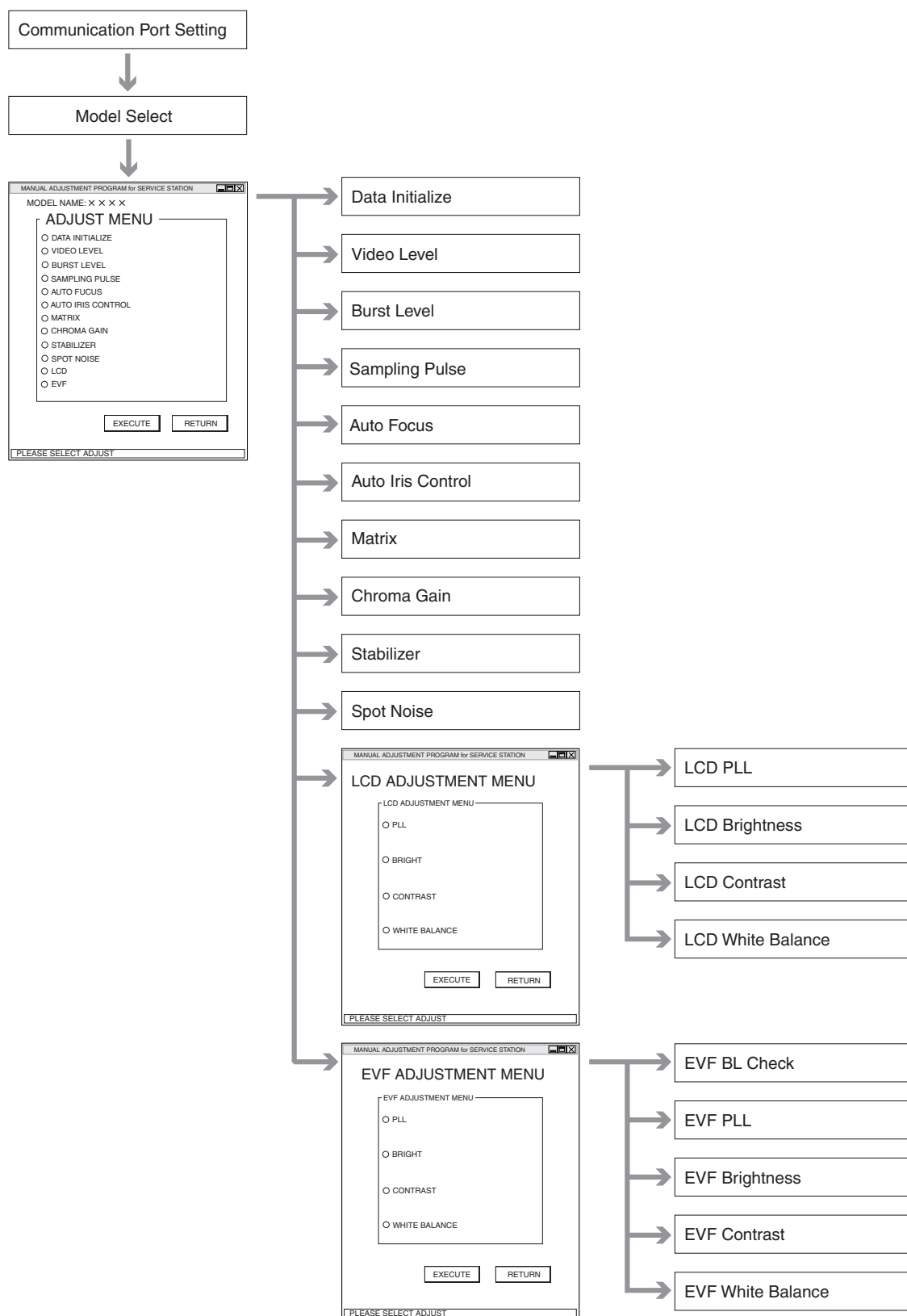
Fig. 6-3-1

6-3-2 List of Adjustments Needed After Replacing Major Components

Item	Major Components						
	MAN circuit board	2.5 LCD unit	EVF unit[*1]	IC1301 IC1302	IC1401 IC1402 IC1403	IC3701	IC6103	Lens unit [For DZ-MV350A/ MV350E]
Data Initialize	●							
Video Level	●						●	
Burst Level	●						●	
Sampling Pulse	●							
Autofocus	●							●
Auto Iris Control	●			●				●
Matrix	●							●
Chroma Gain	●							●
Stabilizer	●				●			
Spot Noise	●							●
LCD PLL	●	●						
LCD Bright	●	●						
LCD Contrast	●	●						
LCD White Balance	●	●						
EVF BL DET Check	●		●			●		
EVF PLL	●					●		
EVF Bright	●					●		
EVF Contrast	●					●		
EVF White Balance	●		●			●		

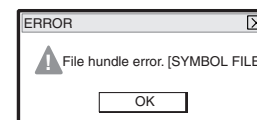| Item	Major Components		
	IC1001 [For DZ-MV380A/ MV380E]	Lens unit [For DZ-MV380A/ MV380E]	R1304-R1307 [For DZ-MV380A/ MV380E]
Data Initialize			
Video Level			
Burst Level			
Sampling Pulse			
Autofocus	●	●	●
Auto Iris Control	●	●	
Matrix	●		
Chroma Gain	●		
Stabilizer			
Spot Noise	●		
LCD PLL			
LCD Bright			
LCD Contrast			
LCD White Balance			
EVF BL DET Check			
EVF PLL			
EVF Bright			
EVF Contrast			
EVF White Balance			

*1: Be sure to perform "EVF BL DET Check" both before and after replacing the EVF unit. If the measurement results before and after replacing the EVF unit are the same, you will not need to execute "EVF White Balance".

6-3-3 Purpose of Adjustments and Incompleted Phenomenon

Item	Purpose	Incompleted Phenomenon
Data Initialize	To initialize EEPROM.	------------
Video Level	To set the video output level.	The picture becomes dark or whitish.
Burst Level	To set the burst level.	
Sampling Pulse	To measure the delay time in sampling IC, and optimize pulse timing.	Diagonal beats and horizontal noise occur.
Autofocus	To set out-of-focus correction level during zoom.	Focus is lost during zooming. It takes time until a subject is brought into focus, or correct focus is not obtained.
Auto Iris Control	To set iris control data.	The picture becomes too bright or dark.
Matrix	To compensate for unevenness in the chroma signal and input auto white balance control data.	Color reproduction becomes defective.
Chroma Gain	To set color saturation for the reference color temperature.	Color of the picture is denser or lighter than that of the subject.
Stabilizer	To write to EEPROM compensation data set at the factory	Correct stabilizer is not obtained.
Spot Noise	To correct spot noise.	Spot noise occurs.
LCD PLL	To synchronize LCD image.	Synchronization of LCD image is distorted.
LCD Bright	To set the bright level and contrast of the LCD monitor.	Color reproduction becomes defective of the LCD monitor.
LCD Contrast		
LCD White Balance		
EVF BL DET Check	To check the characteristics of EVF backlight.	------------
EVF PLL	To synchronize EVF image	Synchronization of EVF image is distorted.
EVF Bright	To set the bright level and contrast of the viewfinder.	Color reproduction becomes defective of the viewfinder.
EVF Contrast		
EVF White Balance		

6-4 Adjustment Procedure

Start the adjustment program referring to "6-2-6 Starting and Terminating Adjustment Program".
For the subsequent operation, operate the PC mouse while watching the PC monitor screen.

Information:
1) Display ×××× on subsequent PC screen shows the model name.
2) The numbers on PC screens show the operational procedure.

6-4-1 Data Initialize

Note:

Perform "Data Initialize" only after replacing the MAN circuit board. Executing "Data Initialize" will initialize all adjustment data in EEPROM. After "Data Initialize", be sure to perform all adjustment items.

◆ Procedure:

1) Check DATA INITIALIZE on the ADJUST MENU
screen.

2) Click the EXECUTE button on ADJUST MENU screen,
and then proceed with START TO SEND DATA? dialog.

3) Click the OK button in START TO SEND DATA? dialog:
After several seconds, "Data Initialize" will finish and
the ADJUST MENU screen will be restored. After that,
be sure to perform all adjustment items.

ADJUST MENU screen
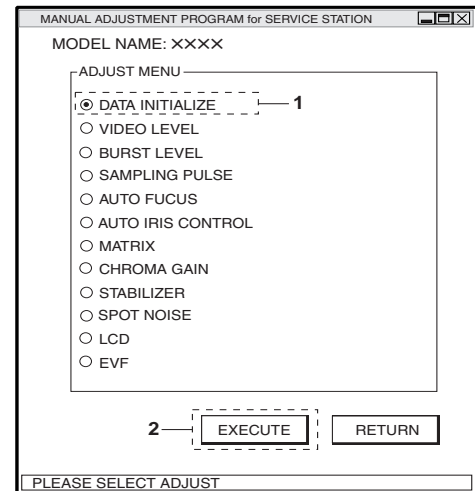
START TO SEND DATA? dialog

6-4-2 Video Level

◆ Preparations:

1) Connect the oscilloscope CH1 to video out.
2) Switch the oscilloscope V-MODE to "CH1" and TRIGGER SOURCE to "CH1".

◆ Procedure:

1) Check VIDEO LEVEL on the ADJUST MENU screen.
2) Click the EXECUTE button on ADJUST MENU screen to proceed with the VIDEO LEVEL ADJUSTMENT screen.
3) Click the UP or DOWN button so that level A of the waveform is 1.0 ± 0.05 Vp-p. Click the button at approx. 2-second intervals while checking any increase or decrease in level A. (See Fig. 6-4-1)
4) After step 3) is complete, be sure to click the SAVE button.
   Note that clicking the RETURN button will restore the ADJUST MENU screen to the status before the adjustment was performed.
5) When save is complete, the ADJUSTMENT FINISHED dialog will appear: Click the OK button in dialog to restore the ADJUST MENU screen.

Fig. 6-4-1 Video Level

ADJUST MENU screen

MANUAL ADJUSTMENT PROGRAM for SERVICE STATION

MODEL NAME: ××××

ADJUST MENU

○ DATA INITIALIZE
⊙ VIDEO LEVEL — 1
○ BURST LEVEL
○ SAMPLING PULSE
○ AUTO FUCUS
○ AUTO IRIS CONTROL
○ MATRIX
○ CHROMA GAIN
○ STABILIZER
○ SPOT NOISE
○ LCD
○ EVF

2 — [EXECUTE]   [RETURN]

PLEASE SELECT ADJUST

VIDEO LEVEL ADJUSTMENT screen

MANUAL ADJUSTMENT PROGRAM for SERVICE STATION

VIDEO LEVEL ADJUSTMENT

[UP]   [DOWN]

3

4 — [SAVE]   [RETURN]

ADJUSTMENT FINISHED dialog

FINISHED

ADJUSTMENT FINISHED.

[OK] — 5

6-4-3 Burst Level

◆ Preparations:

1) Connect the oscilloscope CH1 to video out.
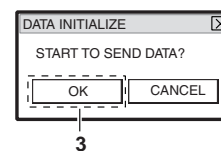
2) Switch the oscilloscope V-MODE to "CH1" and TRIGGER SOURCE to "CH1".

◆ Procedure:

1) Check BURST LEVEL on the ADJUST MENU screen.

2) Click the EXECUTE button on ADJUST MENU screen to proceed with the BURST LEVEL ADJUSTMENT screen.

3) Click the UP or DOWN button so that level B of the waveform is 286mV ± 15 mVp-p. Click the button at approx. 2-second intervals while checking any increase or decrease in level B. (See Fig. 6-4-2)

4) After step 3) is complete, be sure to click the SAVE button.
Note that clicking the RETURN button will restore the ADJUST MENU screen to the status before the adjustment was performed.

5) When save is complete, the ADJUSTMENT FINISHED dialog will appear: Click the OK button in dialog to restore the ADJUST MENU screen.
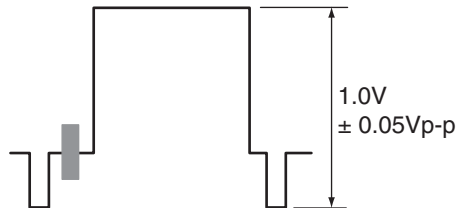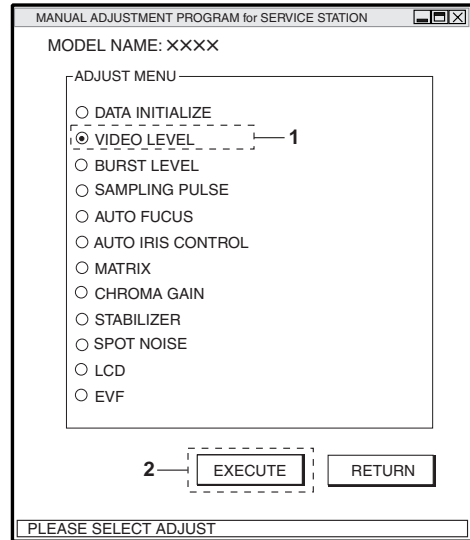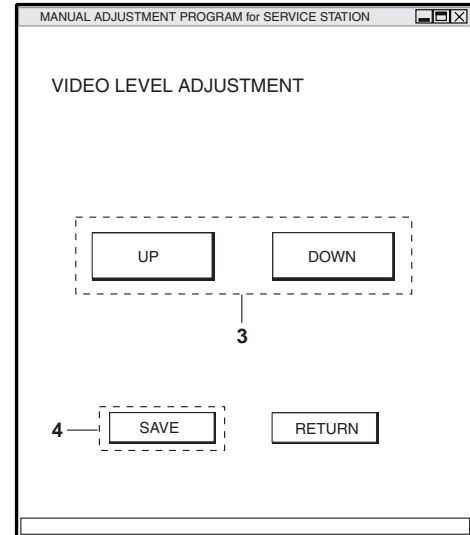
ADJUST MENU screen

MANUAL ADJUSTMENT PROGRAM for SERVICE STATION

MODEL NAME: ××××

ADJUST MENU

○ DATA INITIALIZE
○ VIDEO LEVEL
◉ BURST LEVEL —— 1
○ SAMPLING PULSE
○ AUTO FUCUS
○ AUTO IRIS CONTROL
○ MATRIX
○ CHROMA GAIN
○ STABILIZER
○ SPOT NOISE
○ LCD
○ EVF

2 — EXECUTE   RETURN

PLEASE SELECT ADJUST

BURST LEVEL ADJUSTMENT screen

MANUAL ADJUSTMENT PROGRAM for SERVICE STATION

BURST LEVEL ADJUSTMENT

UP   DOWN

3

4 — SAVE   RETURN

ADJUSTMENT FINISHED dialog

FINISHED

ADJUSTMENT FINISHED.

OK —— 5

286mV
± 15mV

Fig. 6-4-2 Burst Level

6-4-4 Sampling Pulse

Note:

Start this adjustment after the circuit operation is stabilized, e.g., after leaving the DVD video camera/recorder for at least one hour at normal temperature, and then starting within 90 seconds after turning it on. Unstable circuit operation will cause improper adjustment.

◆ Preparation:

Cap the lens of DVD video camera/recorder.

◆ Procedure:

1) Check SAMPLING PULSE on the ADJUST MENU screen.

2) Click the EXECUTE button on ADJUST MENU screen to start adjustment.

3) When adjustment is complete, the ADJUSTMENT FINISHED dialog will appear: Click the OK button in dialog to restore the ADJUST MENU screen.
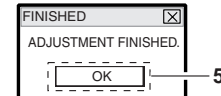
ADJUST MENU screen

MANUAL ADJUSTMENT PROGRAM for SERVICE STATION

MODEL NAME: ××××

ADJUST MENU

○ DATA INITIALIZE
○ VIDEO LEVEL
○ BURST LEVEL
◉ SAMPLING PULSE — 1
○ AUTO FUCUS
○ AUTO IRIS CONTROL
○ MATRIX
○ CHROMA GAIN
○ STABILIZER
○ SPOT NOISE
○ LCD
○ EVF

2 — EXECUTE   RETURN

PLEASE SELECT ADJUST

ADJUSTMENT FINISHED dialog

FINISHED

ADJUSTMENT FINISHED.

OK — 3
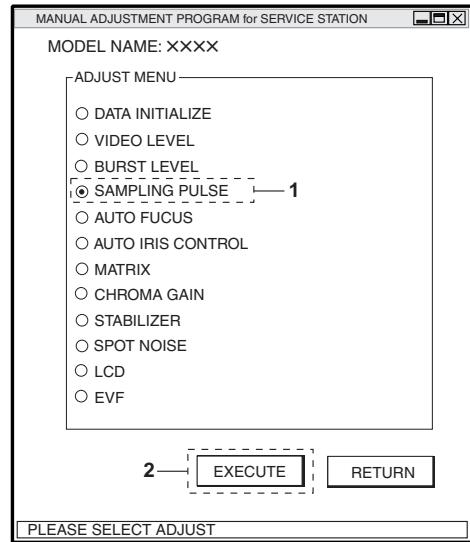
6-4-5 Autofocus

◆ Preparations:

1) Set the backfocus chart as shown in Fig. 6-4-3.

2) Point at backfocus chart 1500mm ± 5 mm away from the lens surface: Measure the distance precisely.

3) Set the zoom to telephoto end, and make sure that the center of backfocus chart appears.

4) Perform this adjustment in a spot where sufficient light is ensured: In a dark place an error screen will appear and normal adjustment will not be possible.

◆ Procedure:

1) Check AUTO FOCUS on the ADJUST MENU screen.

2) Click the EXECUTE button on ADJUST MENU screen to start adjustment.
   The LENS ADJUSTMENT RETRY dialog may appear immediately after the adjustment starts: If it does, click the OK button in dialog. Clicking the OK button will automatically turn the DVD video camera/recorder off: After 10 seconds, turn it on again, and then repeat from step 1).

3) When adjustment is complete, the ADJUSTMENT FINISHED dialog will appear: Click the OK button in dialog to restore the ADJUST MENU screen.

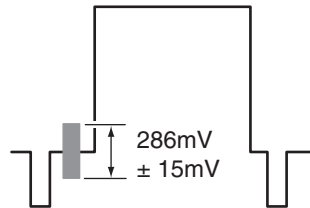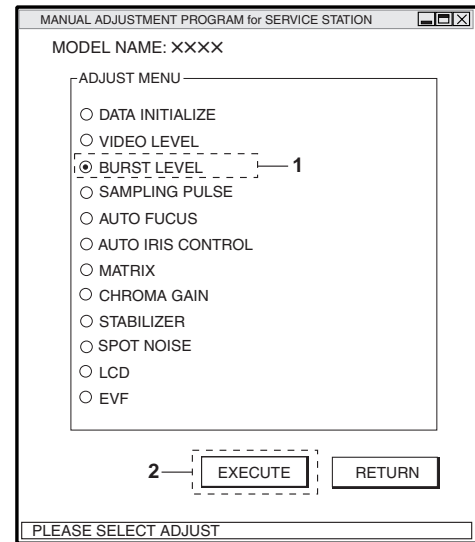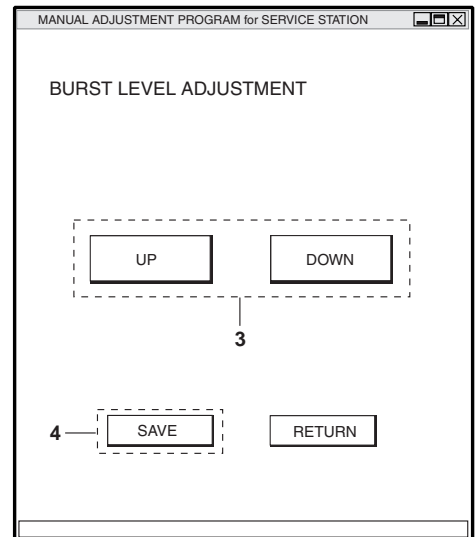ADJUST MENU screen

```
MANUAL ADJUSTMENT PROGRAM for SERVICE STATION   ▯▯✕
  MODEL NAME: ✕✕✕✕
  ┌ADJUST MENU─────────────────────────
  │  ○ DATA INITIALIZE
  │  ○ VIDEO LEVEL
  │  ○ BURST LEVEL
  │  ○ SAMPLING PULSE
  │  ◉ AUTO FUCUS ─────── 1
  │  ○ AUTO IRIS CONTROL
  │  ○ MATRIX
  │  ○ CHROMA GAIN
  │  ○ STABILIZER
  │  ○ SPOT NOISE
  │  ○ LCD
  │  ○ EVF
  │
  │        2 ─┤ EXECUTE │    │ RETURN │
  │
  PLEASE SELECT ADJUST
```
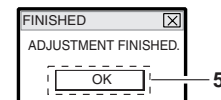
ADJUSTMENT FINISHED dialog

```
FINISHED                    ☒
ADJUSTMENT FINISHED.
  │ OK │ ── 3
```

```
RETRY                       ☒
  ⊗  Lens Adjustment Retry.
       │ OK │
```


Fig. 6-4-3 Backfocus Chart

6-4-6 Auto Iris Control

◆ Preparation:

Set zoom to wide-angle end, and point at light box without chart, filling the screen.
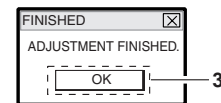
◆ Procedure:

1) Check AUTO IRIS CONTROL on the ADJUST MENU screen.

2) Click the EXECUTE button on ADJUST MENU screen to start adjustment.

   All adjustment in progress can be confirmed with the bar displayed in the dialog.

3) When adjustment is complete, the ADJUSTMENT FINISHED dialog will appear: Click the OK button in dialog to restore the ADJUST MENU screen.
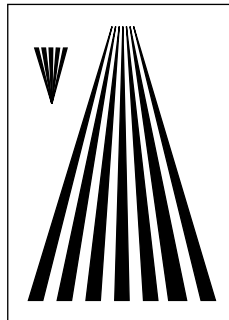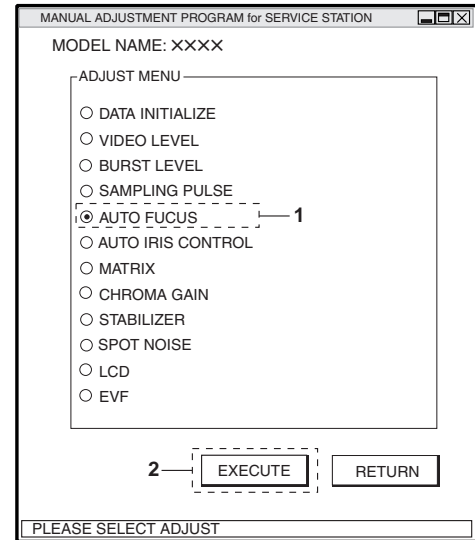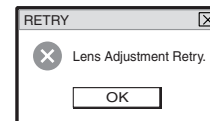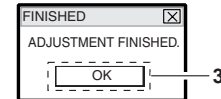
   If the IRIS ADJUSTMENT ERROR dialog appears, click the OK button in dialog, perform the appropriate corrective action, and then perform readjustment. If the IRIS ADJUSTMENT ERROR dialog still appears after the corrective action, the lens unit may be faulty:

a) Turn the light box off, and then make sure that no surrounding light reflects on glass surface of light box. If any surrounding light does reflect on it, perform adjustment in a place where no surrounding light will affect the adjustment.

b) Widen or shorten the distance between the light box and DVD video camera/recorder.

ADJUST MENU screen

```
MANUAL ADJUSTMENT PROGRAM for SERVICE STATION      [_][□][X]

     MODEL NAME: ××××

     ┌ ADJUST MENU ───────────────────────────┐
     │  ○ DATA INITIALIZE                       │
     │  ○ VIDEO LEVEL                           │
     │  ○ BURST LEVEL                           │
     │  ○ SAMPLING PULSE                        │
     │  ○ AUTO FUCUS                            │
     │  ◉ AUTO IRIS CONTROL ├── 1               │
     │  ○ MATRIX                                │
     │  ○ CHROMA GAIN                           │
     │  ○ STABILIZER                            │
     │  ○ SPOT NOISE                            │
     │  ○ LCD                                   │
     │  ○ EVF                                   │
     │                                          │
     │                                          │
     │      2 ─┤ EXECUTE │    │ RETURN │        │
     └──────────────────────────────────────────┘

  PLEASE SELECT ADJUST
```

```
AUTO IRIS CONTROL

 ■■■■■■■□□□□□□□□□□□□

 PLEASE WAIT A MOMENT
```

ADJUSTMENT FINISHED dialog

```
FINISHED              [X]
 ADJUSTMENT FINISHED.
 ┌──────────────┐
 │      OK      │── 3
 └──────────────┘
```

IRIS ADJUSTMENT ERROR dialog

```
ERROR                 [X]
 ⊗   Iris Adjustment Error
       ┌──────────┐
       │    OK    │
       └──────────┘
```

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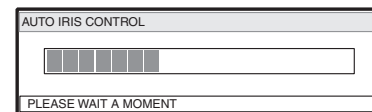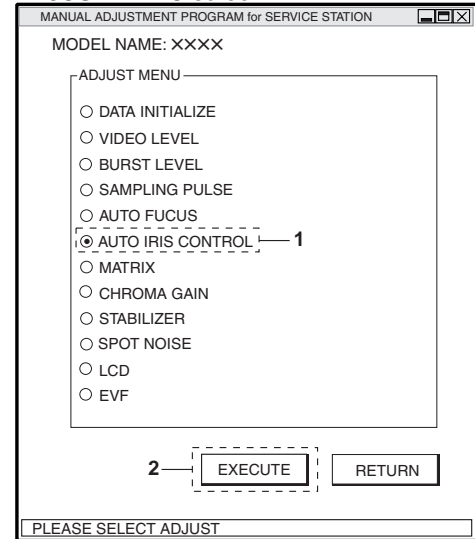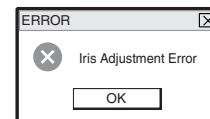
6-4-7 Matrix

◆ Preparation:

Point at light box without chart, filling the screen.

Prepare the C12 light balancing filter (set-up rings): Attach it during adjustment.

◆ Procedure:

1) Check MATRIX on the ADJUST MENU screen.

2) Click the EXECUTE button on ADJUST MENU screen to start adjustment.

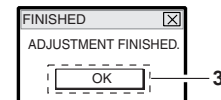   All adjustment in progress can be confirmed with the bar displayed in the dialog.

3) The ATTACH THE FILTER dialog will appear during setup.

   Attach the C12 light balancing filter over the lens of DVD video camera/recorder, and then click the OK button in ATTACH THE FILTER dialog.

4) The REMOVE THE FILTER dialog will appear again during setup.

   Remove the C12 light balancing filter from the lens of DVD video camera/recorder, and then click the OK button in REMOVE THE FILTER dialog.

   After that, the ATTACH THE FILTER dialog and REMOVE THE FILTER dialog may occasionally appear: Reattach the C12 light balancing filter and remove it each time.

5) When adjustment is complete, the ADJUSTMENT FINISHED dialog will appear: Click the OK button in dialog to restore the ADJUST MENU screen.

ADJUST MENU screen

MANUAL ADJUSTMENT PROGRAM for SERVICE STATION

MODEL NAME: ××××

ADJUST MENU

○ DATA INITIALIZE
○ VIDEO LEVEL
○ BURST LEVEL
○ SAMPLING PULSE
○ AUTO FUCUS
○ AUTO IRIS CONTROL
◉ MATRIX — 1
○ CHROMA GAIN
○ STABILIZER
○ SPOT NOISE
○ LCD
○ EVF

2 — EXECUTE   RETURN

PLEASE SELECT ADJUST

MATRIX

PLEASE WAIT A MOMENT

ATTACH THE FILTER dialog

CHECK ⊠
⚠ Attach The Filter.
OK — 3

REMOVE THE FILTER dialog

CHECK ⊠
⚠ Remove The Filter.
OK — 4
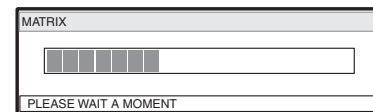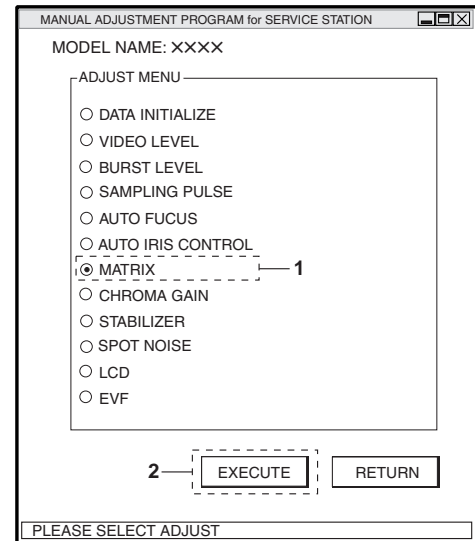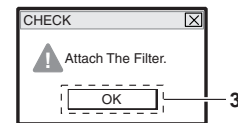
ADJUSTMENT FINISHED dialog

FINISHED ⊠
ADJUSTMENT FINISHED.
OK — 5

6-4-8 Chroma Gain

◆ Preparation:

Point at light box without chart, filling the screen.

Prepare the color bar chart: Use it during adjustment.

◆ Procedure:

1) Press the MENU button on DVD video camera/recorder, and use the joystick to specify "White Bal.: Set" to display the white balance screen. (See Fig. 6-4-4)

2) Press the center button on joystick: The "▨" mark on the white balance setting screen will blink. Hold down the button until the "▨" mark changes to a steady light.

3) Press the STOP button on DVD video camera/recorder.

4) Insert the color bar chart into light box and point the DVD video camera/recorder at the chart so that it fills the screen.
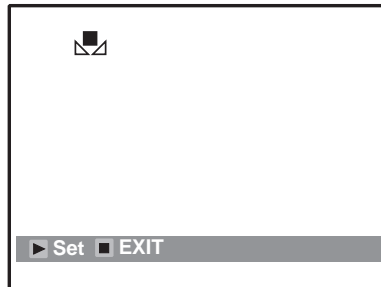
Fig. 6-4-4 White balance set screen

5) Check CHROMA GAIN on the ADJUST MENU screen.

6) Click the EXECUTE button on ADJUST MENU screen to proceed with the CHROMA GAIN ADJUSTMENT screen.

ADJUST MENU screen

6 - 28
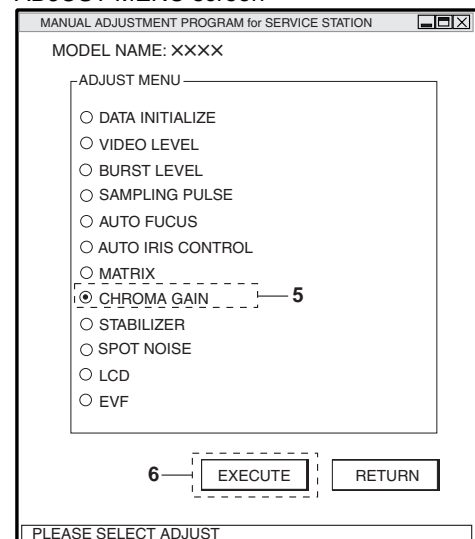
7) Click the GAIN UP or GAIN DOWN button in ROUGH ADJUSTMENT box so that the value of red vector or red level approaches that in Table 6-4-1. Click the button at approx. 2-second intervals while checking the increase or decrease of vector or level.

8) Click the GAIN UP or GAIN DOWN button in FINE ADJUSTMENT box so that the value of red vector or red level matches that in Table 6-4-1. Click the button at approx. 2-second intervals while checking any increase or decrease in vector or level.

9) After step 8) is complete, be sure to click the SAVE button.
Note that clicking the RETURN button will restore the ADJUST MENU screen to the status before the adjustment was performed.

10) When save is complete, the ADJUSTMENT FINISHED dialog will appear: Click the OK button in dialog to restore the ADJUST MENU screen.

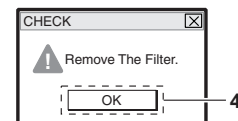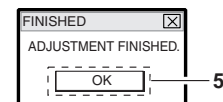11) Press the MENU button on DVD video camera/recorder, and use the joystick to specify (return to) "White Bal.: Auto".

CHROMA GAIN ADJUSTMENT screen
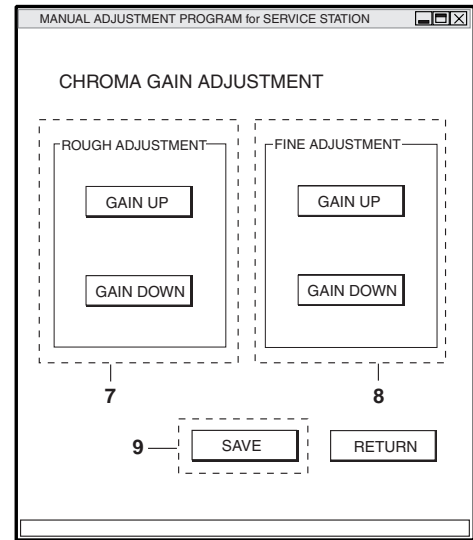
ADJUSTMENT FINISHED dialog
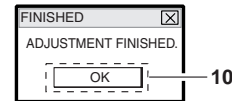
Table 6-4-1 Value of Red Level/Vector

When using a vectorscope	When using an oscilloscope
A = 280 % ± 5 %	B = 780mV ± 20 mVp-p
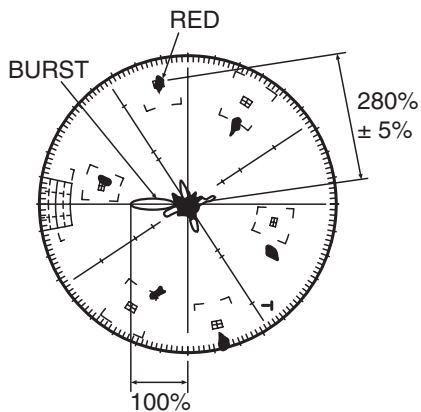
Fig. 6-4-5 When using a vectorscope
[DZ-MV350A/MV380A]
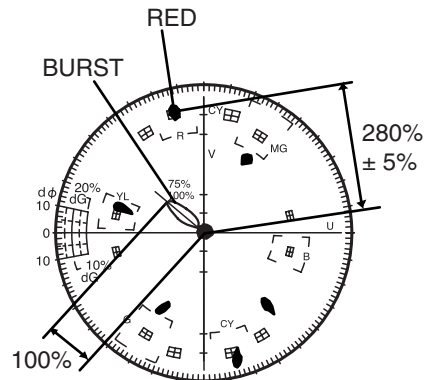
Fig. 6-4-6 When using a vectorscope
[DZ-MV350E/MV380E]
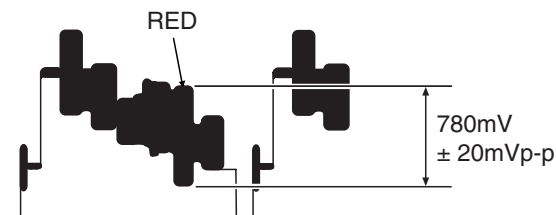
Fig. 6-4-7 When using an oscilloscope

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6-4-9 Stabilizer

Note:

Perform STABILIZER only after replacing any component on the GYR circuit board or executing "Data Initialize".

This item STABILIZER is not an adjustment, but is performed to write the camera shake correction value contained in adjustment program to EEPROM.

Although the camera shake correction value written to EEPROM is an adjustment value inherent in individual devices when shipped from the factory, the camera shake correction value contained in adjustment program is an average value set at the factory. Therefore, after STABILIZER is executed, the performance of stabilizer will deteriorate slightly.

◆ Procedure:

1) Check STABILIZER on the ADJUST MENU screen.
2) Click the EXECUTE button on ADJUST MENU screen to start writing of camera shake correction value.
3) When adjustment is complete, the ADJUSTMENT FINISHED dialog will appear: Click the OK button in dialog to restore the ADJUST MENU screen.

ADJUST MENU screen

MANUAL ADJUSTMENT PROGRAM for SERVICE STATION
MODEL NAME: ××××

ADJUST MENU

○ DATA INITIALIZE
○ VIDEO LEVEL
○ BURST LEVEL
○ SAMPLING PULSE
○ AUTO FUCUS
○ AUTO IRIS CONTROL
○ MATRIX
○ CHROMA GAIN
◉ STABILIZER ———1
○ SPOT NOISE
○ LCD
○ EVF

2——— EXECUTE   RETURN

PLEASE SELECT ADJUST

ADJUSTMENT FINISHED dialog

FINISHED   ⊠

ADJUSTMENT FINISHED.

OK ———3
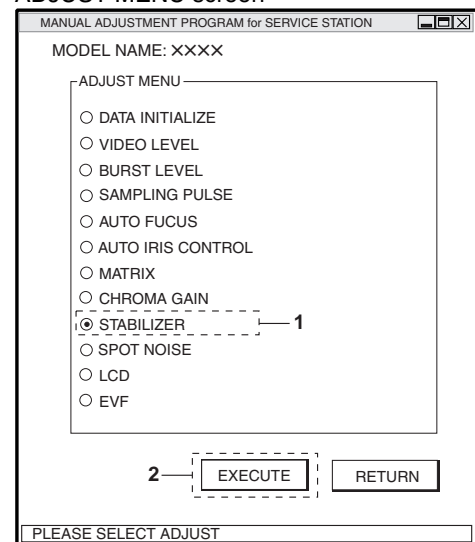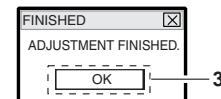
6-4-10 Spot Noise

Information:

1) The SPOT NOISE adjustment compensates for bright points that appear on the screen, and these are caused by a defect in pixel of CCD (image sensor) that may occur when DVD video camera/recorder is used under particular conditions or for a long time. Therefore, execute SPOT NOISE only in the following cases:

   a) Pixel defect occurs in CCD and a bright point appears on screen,

   b) Lens unit (CCD) is replaced

   c) "Data Initialize" is executed

2) The presence or absence of a bright point that appears on screen due to pixel defect on CCD can easily be judged by capping the lens. Use a CRT color monitor for this check.

◆ Procedure:

1) Check SPOT NOISE on the ADJUST MENU screen.

2) Click the EXECUTE button on ADJUST MENU screen to start adjustment.
   When SPOT NOISE starts, the DVD video camera/recorder will automatically turn on again.

3) When adjustment is complete, the ADJUSTMENT FINISHED dialog will appear: Click the OK button in dialog to restore the ADJUST MENU screen.
   If bright point still appears after adjustment is finished, the lens unit (CCD) may be faulty.

ADJUST MENU screen

```
┌─────────────────────────────────────────────┐
│ MANUAL ADJUSTMENT PROGRAM for SERVICE STATION  ▀�口✕ │
│  MODEL NAME: ✕✕✕✕                            │
│ ┌─ADJUST MENU──────────────────────────────┐ │
│ │  ○ DATA INITIALIZE                        │ │
│ │  ○ VIDEO LEVEL                            │ │
│ │  ○ BURST LEVEL                            │ │
│ │  ○ SAMPLING PULSE                         │ │
│ │  ○ AUTO FUCUS                             │ │
│ │  ○ AUTO IRIS CONTROL                      │ │
│ │  ○ MATRIX                                 │ │
│ │  ○ CHROMA GAIN                            │ │
│ │  ○ STABILIZER                             │ │
│ │  ◉ SPOT NOISE ──────────────── 1          │ │
│ │  ○ LCD                                    │ │
│ │  ○ EVF                                    │ │
│ │                                           │ │
│ │         2─┤ EXECUTE │   │ RETURN │         │ │
│ └───────────────────────────────────────────┘ │
│ │ PLEASE SELECT ADJUST                       │ │
└─────────────────────────────────────────────┘
```

ADJUSTMENT FINISHED dialog

```
┌──────────────────┐
│ FINISHED      ✕  │
│ ADJUSTMENT FINISHED. │
│   │ OK │──── 3    │
└──────────────────┘
```
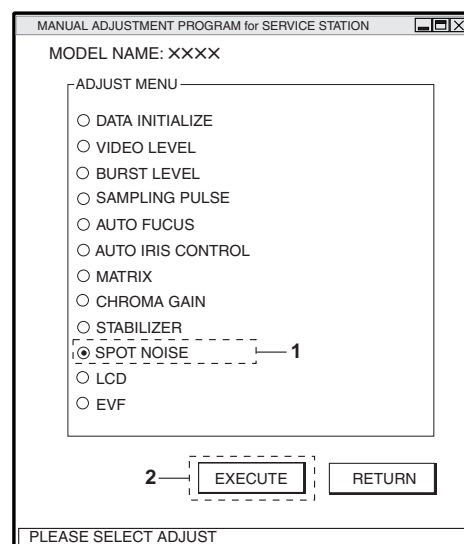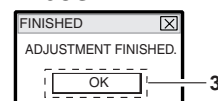
6-4-11 LCD

Note:
1) Perform LCD only after replacing the MAN circuit board or 2.5 LCD Unit, or executing "Data Initialize".
2) Neither light box nor chart is needed for LCD adjustment.

Before performing any adjustments for LCD, be sure to shift the DVD video camera/recorder to the test mode using the procedure below, and then display the LCD ADJUSTMENT MENU.

◆ Procedure:
1) Check LCD on the ADJUST MENU screen.
2) Click the EXECUTE button on ADJUST MENU screen to shift the DVD video camera/recorder to the test mode. Progress of the shift can be confirmed from the bar displayed in the dialog.
3) When the DVD video camera/recorder has shifted to the test mode, the LCD screen will be black and white (see Fig. 6-4-8), and the LCD ADJUSTMENT MENU screen will appear on the PC monitor screen.
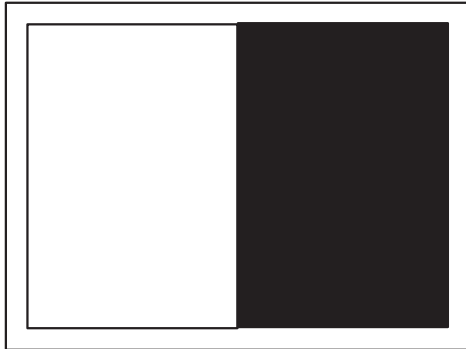
ADJUST MENU screen

Fig. 6-4-8 LCD Monitor Screen

LCD ADJUSTMENT MENU screen

6 - 32
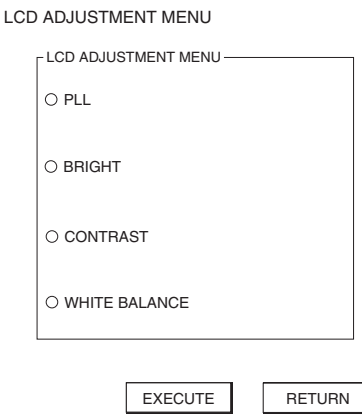
(1) LCD PLL

◆ Preparation:

Connect the frequency counter to "LCD-HDD (pin 9)" of Skylark Connection jig.

◆ Procedure:

1) Check PLL on the LCD ADJUSTMENT MENU screen.
2) Click the EXECUTE button on LCD ADJUSTMENT MENU screen to proceed with the PLL ADJUSTMENT screen.
   Synchronization of the video on LCD monitor screen will be off at this time, and the image will flow.
3) Click the UP or DOWN button so that the reading on frequency counter matches the value in Table 6-4-2. Click the button at approx. 2-second intervals while checking the variation of frequencies.
4) After step 3) is complete, be sure to click the SAVE button.
   Note that clicking the RETURN button will restore the LCD ADJUSTMENT MENU screen to the status before the adjustment was performed.
5) When save is complete, the ADJUSTMENT FINISHED dialog will appear: Click the OK button in dialog to restore the LCD ADJUSTMENT MENU screen.

Table 6-4-2 Value of Frequency

Model	Value
DZ-MV350A/MV380A	15.734 kHz ± 0.1 kHz
DZ-MV350E/MV380E	15.625 kHz ± 0.1 kHz

LCD ADJUSTMENT MENU screen

PLL ADJUSTMENT screen.

ADJUSTMENT FINISHED dialog

6 - 33
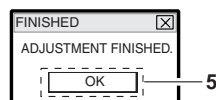
(2) LCD Brightness

◆ Preparations:

1) Connect the oscilloscope CH2 to "LCD-G (pin 5)" of Skylark Connection jig.

2) Switch the oscilloscope V-MODE to "CH2": Leave the TRRIGER SOURCE in "CH1" as is.

◆ Procedure:

1) Check BRIGHT on the LCD ADJUSTMENT MENU screen.

2) Click the EXECUTE button on LCD ADJUSTMENT MENU screen to proceed with the BRIGHT ADJUSTMENT screen.

3) Click the UP or DOWN button so that the value of level A matches that in Table 6-4-3. Click the button at approx. 2-second intervals while checking any increase or decrease in level A. (See Fig. 6-4-9)

4) After step 3) is complete, be sure to click the SAVE button.
   Note that clicking the RETURN button will restore the LCD ADJUSTMENT MENU screen to the status before the adjustment was performed.

5) When save is complete, the ADJUSTMENT FINISHED dialog will appear: Click the OK button in dialog to restore the LCD ADJUSTMENT MENU screen.

Table 6-4-3 Value of Level A

Model	Value
DZ-MV350A/MV380A	$7.55V \pm 0.1V$
DZ-MV350E/MV380E	$8.0V \pm 0.1V$
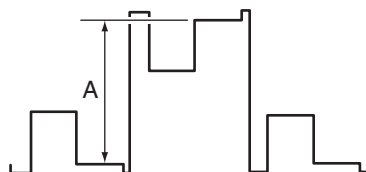
Fig. 6-4-9

LCD ADJUSTMENT MENU screen
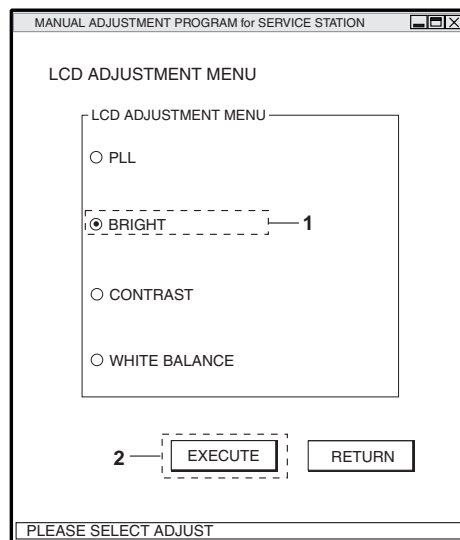
BRIGHT ADJUSTMENT screen
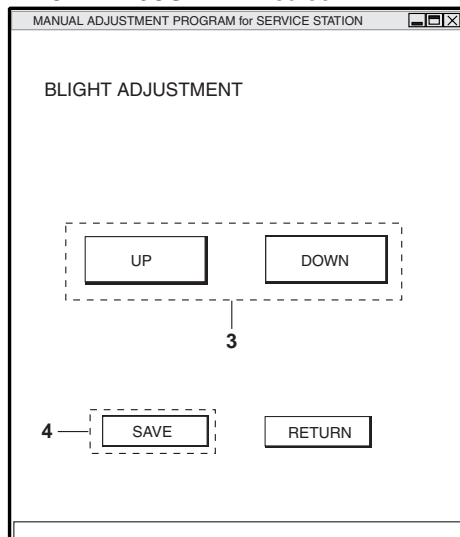
ADJUSTMENT FINISHED dialog
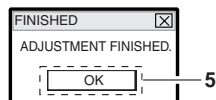
(3) LCD Contrast

◆ Preparations:

1) Connect the oscilloscope CH2 to "LCD-G (pin 5)" of Skylark Connection jig.

2) Switch the oscilloscope V-MODE to "CH2": Leave the TRRIGER SOURCE in "CH1" as is.

◆ Procedure

1) Check CONTRAST on the LCD ADJUSTMENT MENU screen.

2) Click the EXECUTE button on LCD ADJUSTMENT MENU screen to proceed with the CONTRAST ADJUSTMENT screen.
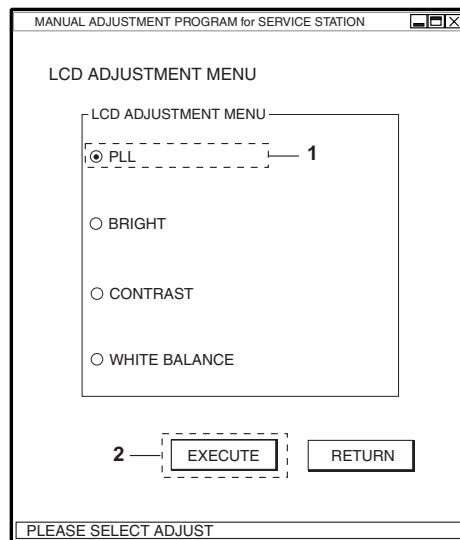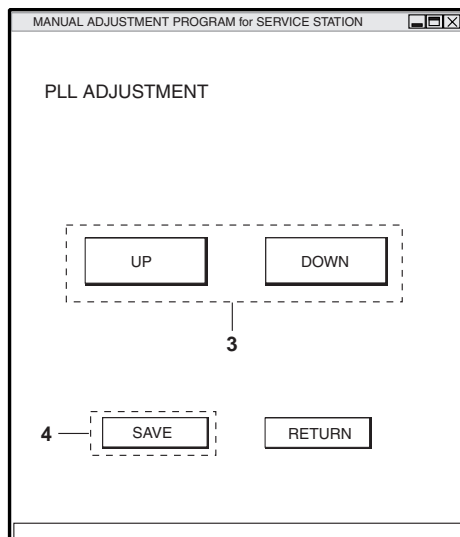
3) Click the UP or DOWN button so that the value of level B matches that in Table 6-4-4. Click the button at approx. 2-second intervals while checking any increase or decrease in level B. (See Fig. 6-4-10)

4) After step 3) is complete, be sure to click the SAVE button.
Note that clicking the RETURN button will restore the LCD ADJUSTMENT MENU screen to the status before the adjustment was performed.

5) When save is complete, the ADJUSTMENT FINISHED dialog will appear: Click the OK button in dialog to restore the LCD ADJUSTMENT MENU screen.

Table 6-4-3 Value of Level B

Model	Value
DZ-MV350A/MV380A	2.35V ± 0.1V
DZ-MV350E/MV380E	2.10V ± 0.1V
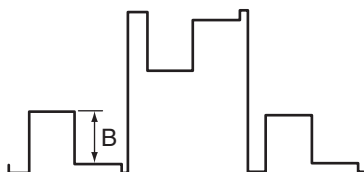
Fig. 6-4-10

LCD ADJUSTMENT MENU screen

CONTRAST ADJUSTMENT screen

ADJUSTMENT FINISHED dialog

6 - 35
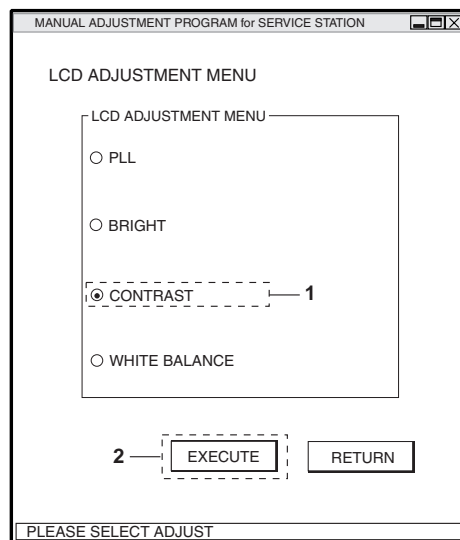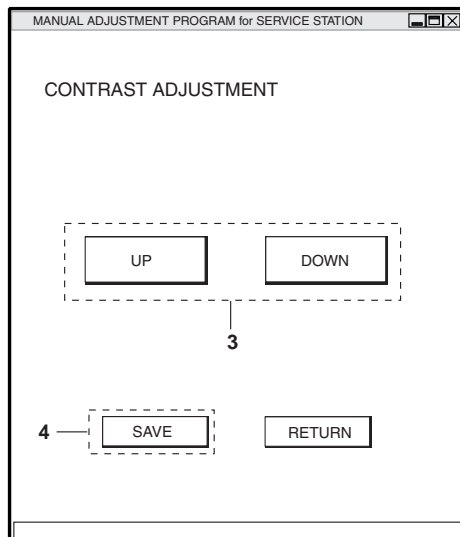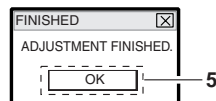
(4) LCD White Balance

◆ Preparations:

1) Connect the oscilloscope CH1 to "LCD-R (pin 3)" of Skylark Connection jig.

2) Connect the oscilloscope CH2 to "LCD-G (pin 5)" of Skylark Connection jig.

3) Connect the oscilloscope EXT TRIG to video output.

4) Switch the oscilloscope V-MODE to "ALT" and TRIGGER SOURCE to "EXT".

5) Set the switches and knobs on oscilloscope so that the CH1 and CH2 waveforms appear as shown in Fig. 6-4-11.

◆ Procedure

1) Check WHITE BALANCE on the LCD ADJUSTMENT MENU screen.

2) Click the EXECUTE button on LCD ADJUSTMENT MENU screen to proceed with the SUB BRIGHT RED ADJUSTMENT screen.

3) Click the UP and DOWN buttons so that level a of CH1 waveform is equal to level b of CH2 waveform. Click the button at approx. 2-second intervals while checking any increase or decrease in level a. (See Fig. 6-4-11)

4) After step 3) is complete, be sure to click the NEXT button, and then proceed with the SUB CONTRAST RED ADJUSTMENT screen.
Note that clicking the RETURN button will restore the LCD ADJUSTMENT MENU screen to the status before the adjustment was performed.

5) Use the same procedure as in step 3) to equalize levels c and d of the waveform. (See Fig. 6-4-11)

6) After step 5) is complete, be sure to click the NEXT button, and then proceed with the SUB BRIGHT BLUE ADJUSTMENT screen.

Fig. 6-4-11

LCD ADJUSTMENT MENU screen
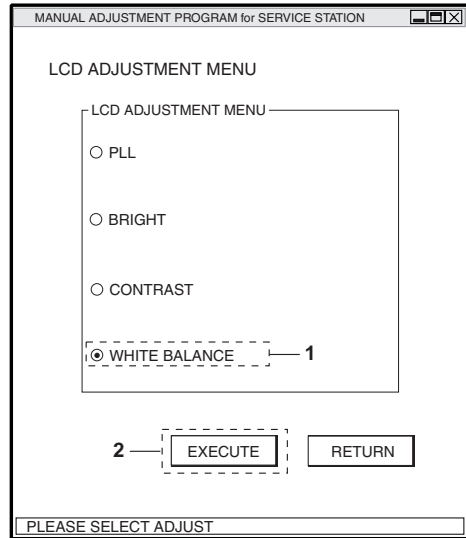
SUB BRIGHT RED ADJUSTMENT screen.

SUB CONTRAST RED ADJUSTMENT screen.

6 - 36
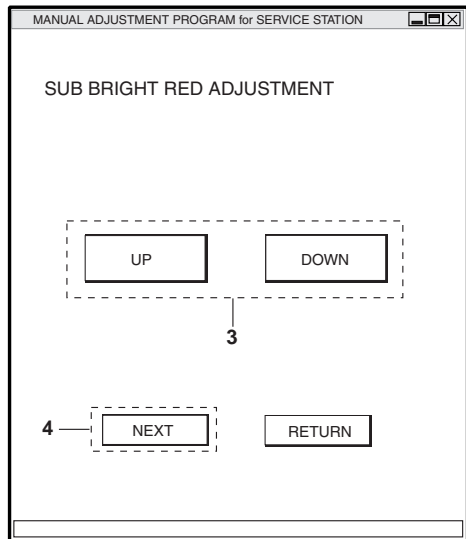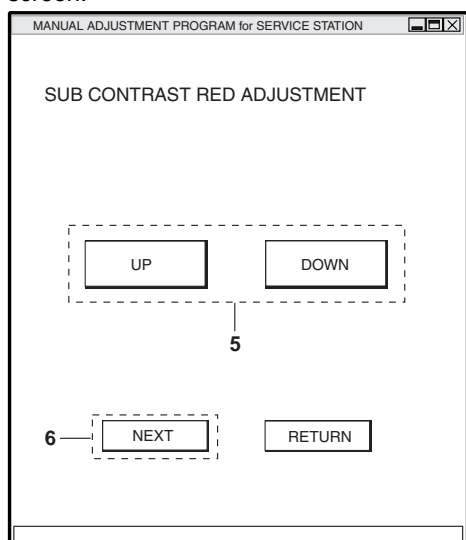
7) Connect the oscilloscope CH1 to "LCD-B (pin 7)" of Skylark Connection jig.

8) Use the same procedure as in step 3) to equalize levels a and b of the waveform. (See Fig. 6-4-11)

9) After step 8) is complete, be sure to click the NEXT button, and then proceed with the SUB CONTRAST BLUE ADJUSTMENT screen.

10) Use the same procedure as in step 3) to equalize levels c and d of the waveform.

11) After step 10) is complete, be sure to click the SAVE button.

12) When save is complete, the ADJUSTMENT FINISHED dialog will appear: Click the OK button in dialog to restore the LCD ADJUSTMENT MENU screen.

13) Click the RETURN button in LCD ADJUSTMENT MENU to restore the ADJUST MENU screen.

SUB BRIGHT BLUE ADJUSTMENT screen.

MANUAL ADJUSTMENT PROGRAM for SERVICE STATION

SUB BRIGHT BLUE ADJUSTMENT

UP   DOWN

8

9 — NEXT   RETURN

SUB CONTRAST BLUE ADJUSTMENT screen.

MANUAL ADJUSTMENT PROGRAM for SERVICE STATION

SUB CONTRAST BLUE ADJUSTMENT

UP   DOWN

10

11 — SAVE   RETURN

ADJUSTMENT FINISHED dialog

FINISHED

ADJUSTMENT FINISHED.

OK — **12**
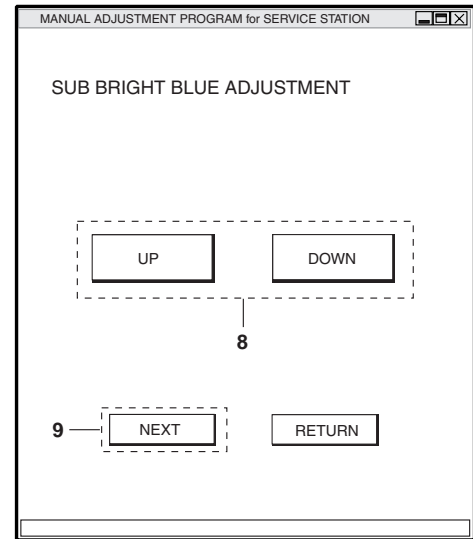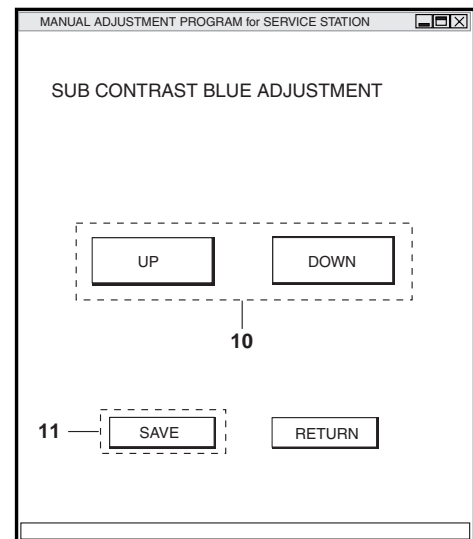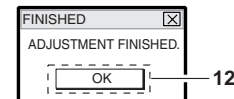
6-4-12 EVF

Note:

1) Perform EVF only after replacing IC3701 and its peripheral components, MAIN circuit board or EVF unit, or executing "DATA Initialize".

2) Neither light box nor chart is needed for EVF adjustment.

Before performing any adjustments for EVF, be sure to shift the DVD video camera/recorder to the test mode using the procedure below, and then display the EVF ADJUSTMENT MENU.

◆ Procedure:

1) Open the LCD monitor, and then turn it 180° so that the LCD screen faces the same direction as the lens.

2) Check EVF on the ADJUST MENU screen.

3) Click the EXECUTE button on ADJUST MENU screen to shift the DVD video camera/recorder to the test mode. Progress of the shift can be confirmed from the bar displayed in the dialog.

4) When the DVD video camera/recorder has shifted to the test mode, the viewfinder screen will be black and white (see Fig. 6-4-12), and the EVF ADJUSTMENT MENU will appear on the PC monitor screen.

Fig. 6-4-12 Viewfinder Screen

ADJUST MENU screen

MANUAL ADJUSTMENT PROGRAM for SERVICE STATION

MODEL NAME: ××××

ADJUST MENU

○ DATA INITIALIZE
○ VIDEO LEVEL
○ BURST LEVEL
○ SAMPLING PULSE
○ AUTO FUCUS
○ AUTO IRIS CONTROL
○ MATRIX
○ CHROMA GAIN
○ STABILIZER
○ SPOT NOISE
○ LCD
◉ EVF ————2

3—— EXECUTE   RETURN

PLEASE SELECT ADJUST

EVF ADJUSTMENT INITIALIZE

PLEASE WAIT A MOMENT

EVF ADJUSTMENT MENU screen

MANUAL ADJUSTMENT PROGRAM for SERVICE STATION

EVF ADJUSTMENT MENU

EVF ADJUSTMENT MENU

○ PLL

○ BRIGHT

○ CONTRAST

○ WHITE BALANCE

EXECUTE   RETURN

PLEASE SELECT ADJUST

(1) BL DET Check

Note:

Be sure to take note of the resulting value of this check because the check value will be needed when EVF adjustment is completed.

There are two types of EVF unit mounted in these DVD video camera/recorder series models:

The backlight characteristics of the two types are different.

This check item identifies the type of EVF unit mounted (replaced).

◆ Procedure:

1) Connect the digital voltmeter to "BL-DET (pin 12)" of Skylark Connection jig.

2) Check whether the reading on digital voltmeter is 5 V or 0 V., and take note of the value.

(2) EVF PLL

◆ Preparations:

1) Connect the oscilloscope CH1 to "EVF-HDD (pin 14)" of Skylark Connection jig.

2) Connect the oscilloscope CH2 to "EVF-RPD (pin 8)" of Skylark Connection jig.

3) Switch the oscilloscope V-MODE to "ALT" and TRIGGER SOURCE to "CH1".

4) Set the switches and knobs on oscilloscope so that the CH1 and CH2 waveforms appear as shown in Fig. 6-4-13.

◆ Procedure:

1) Check PLL on the EVF ADJUSTMENT MENU screen.

2) Click the EXECUTE button on EVF ADJUSTMENT MENU screen to proceed with the PLL ADJUSTMENT screen.

3) Click the UP or DOWN button so that the centers of CH1 and CH2 waveforms approximately match. (See Fig. 6-4-13)

4) After step 3) is complete, be sure to click the SAVE button.

Note that clicking the RETURN button will restore the EVF ADJUSTMENT MENU screen to the status before the adjustment was performed.

5) When save is complete, the ADJUSTMENT FINISHED dialog will appear: Click the OK button in dialog to restore the EVF ADJUSTMENT MENU screen.

EVF ADJUSTMENT MENU screen

PLL ADJUSTMENT screen

ADJUSTMENT FINISHED dialog

Fig. 6-4-13

6 - 39
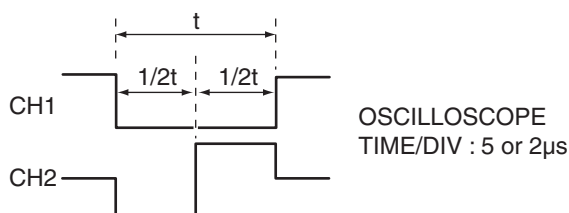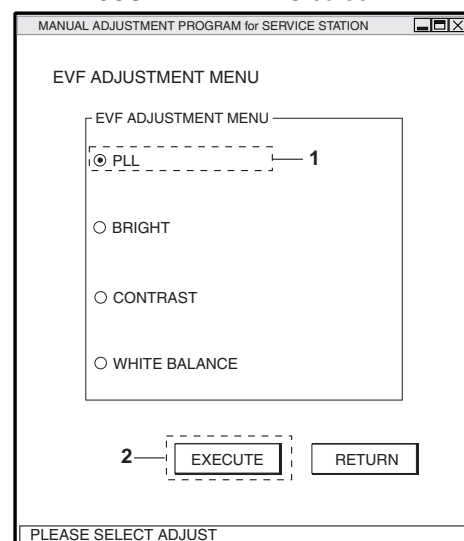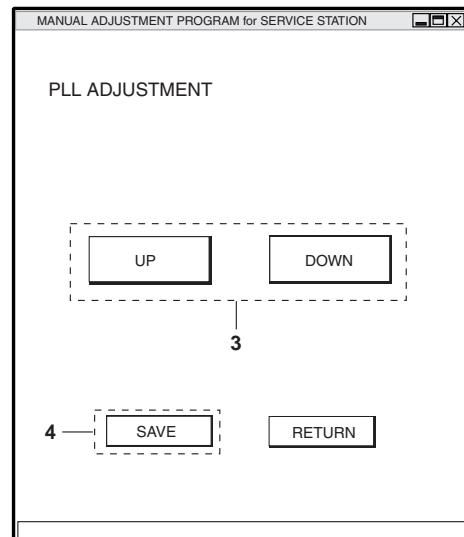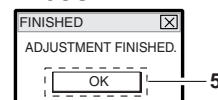
(3) EVF Brightness

◆ Preparations:

1) Connect the oscilloscope CH1 to video output.

2) Connect the oscilloscope CH2 to "EVF-G (pin 4)" of Skylark Connection jig.

3) Switch the oscilloscope V-MODE to "CH2" and TRIGGER SOURCE to "CH1".

◆ Procedure:

1) Check BRIGHT on the EVF ADJUSTMENT MENU screen.

2) Click the EXECUTE button on EVF ADJUSTMENT MENU screen to proceed with the BRIGHT ADJUSTMENT screen.

3) Click the UP or DOWN button so that level A of the waveform is 7.4 ± 0.1 V. Click the button at approx. 2-second intervals while checking any increase or decrease in level A. (See Fig. 6-4-14)

4) After step 3) is complete, be sure to click the SAVE button.
Note that clicking the RETURN button will restore the EVF ADJUSTMENT MENU screen to the status before the adjustment was performed.

5) When save is complete, the ADJUSTMENT FINISHED dialog will appear: Click the OK button in dialog to restore the EVF ADJUSTMENT MENU screen.
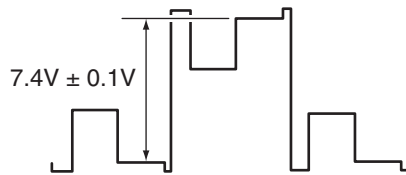
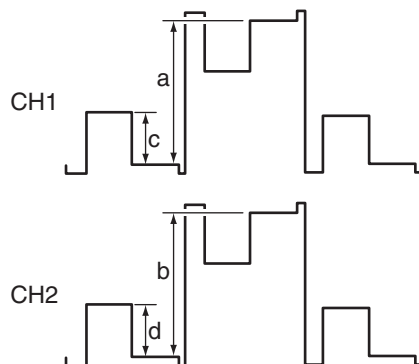Fig. 6-4-14

EVF ADJUSTMENT MENU screen

BRIGHT ADJUSTMENT screen

ADJUSTMENT FINISHED dialog

6 - 40
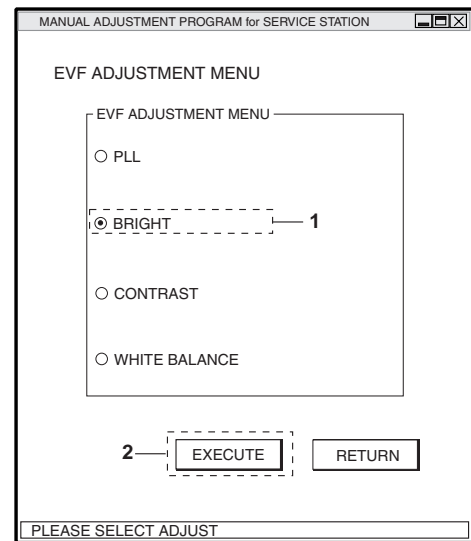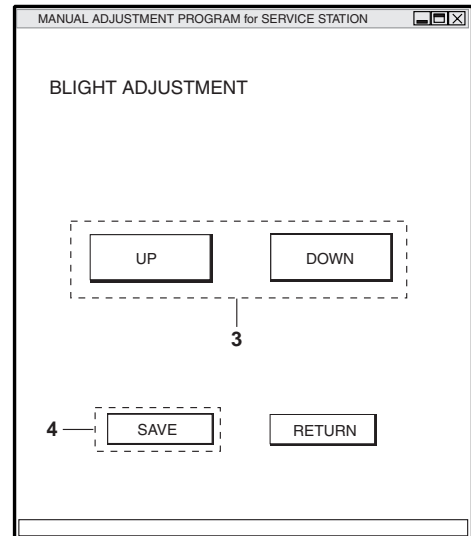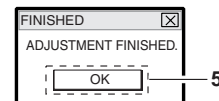
(4) EVF Contrast

◆ Preparations:

1) Connect the oscilloscope CH2 to "EVF-G (pin 4)" of Skylark Connection jig. Confirm the CH1 connection to video out.

2) Switch the oscilloscope V-MODE to "CH2": Leave the TRIGGER SOURCE in "CH1" as is.

◆ Procedure:

1) Check CONTRAST on the EVF ADJUSTMENT MENU screen.

2) Click the EXECUTE button on EVF ADJUSTMENT MENU screen to proceed with the CONTRAST ADJUSTMENT screen.

3) Click the UP or DOWN button so that level B of the waveform is 2.1 ± 0.1 V. Click the button at approx. 2-second intervals while checking any increase or decrease in level B. (See Fig. 6-4-15)

4) After step 3) is complete, be sure to click the SAVE button.
Note that clicking the RETURN button will restore the EVF ADJUSTMENT MENU screen to the status before the adjustment was performed.

5) When save is complete, the ADJUSTMENT FINISHED dialog will appear: Click the OK button in dialog to restore the EVF ADJUSTMENT MENU screen.
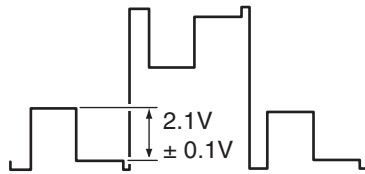
Fig. 6-4-15

EVF ADJUSTMENT MENU screen

CONTRAST ADJUSTMENT screen

ADJUSTMENT FINISHED dialog

6 - 41
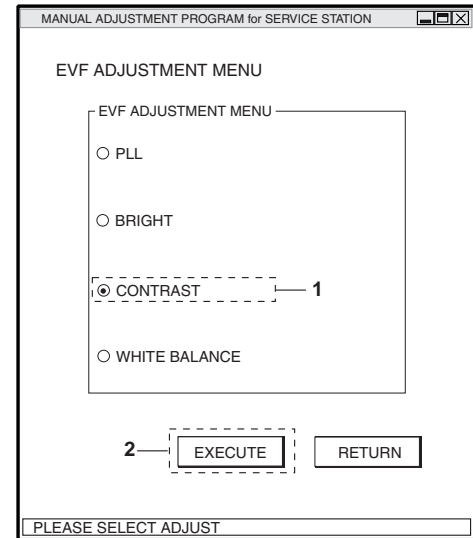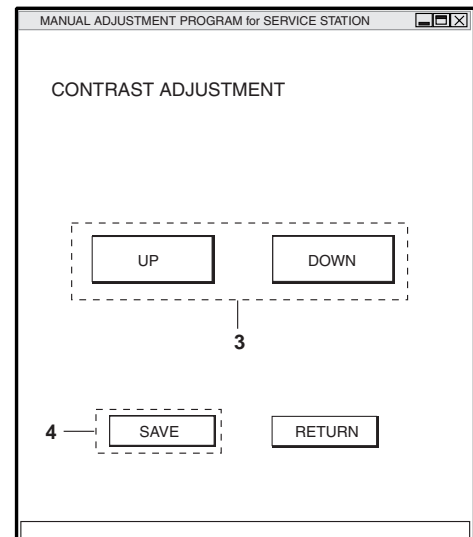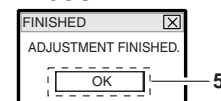
(5) EVF White Balance

◆ Preparations:

1) Connect the oscilloscope CH1 to "EVF-R (pin 2)" of Skylark Connection jig.

2) Connect the oscilloscope CH2 to "EVF-G (pin 4)" of Skylark Connection jig.

3) Connect the oscilloscope EXT TRIG to video output.

4) Switch the oscilloscope V-MODE to "ALT" and TRIGGER SOURCE to "EXT".

5) Set the switches and knobs on oscilloscope so that the CH1 and CH2 waveforms appear as shown in Fig. 6-4-16.

◆ Procedure:

1) Check WHITE BALANCE on the EVF ADJUSTMENT MENU screen.

2) Click the EXECUTE button on EVF ADJUSTMENT MENU screen to proceed with the SUB BRIGHT RED ADJUSTMENT screen.

3) Click the UP and DOWN buttons so that level a of CH1 waveform is equal to level b of CH2 waveform. Click the button at approx. 2-second intervals while checking increase or decrease level a. (See Fig. 6-4-16)

4) After step 3) is complete, be sure to click the NEXT button, and then proceed with the SUB CONTRAST RED ADJUSTMENT screen.
Note that clicking the RETURN button will restore the EVF ADJUSTMENT MENU screen to the status before the adjustment was performed.

5) Use the same procedure as in step 3) to equalize levels c and d of the waveform. (See Fig. 6-4-16)

6) After step 5) is complete, be sure to click the NEXT button, and then proceed with the SUB BRIGHT BLUE ADJUSTMENT screen.
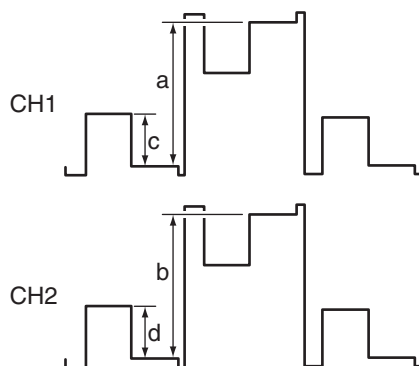
Fig. 6-4-16

EVF ADJUSTMENT MENU screen

| MANUAL ADJUSTMENT PROGRAM for SERVICE STATION | ▢▢✕ |

EVF ADJUSTMENT MENU

┌─ EVF ADJUSTMENT MENU ─────
○ PLL

○ BRIGHT

○ CONTRAST

◉ WHITE BALANCE ── **1**

2 ── EXECUTE   RETURN

PLEASE SELECT ADJUST

SUB BRIGHT RED ADJUSTMENT screen.

| MANUAL ADJUSTMENT PROGRAM for SERVICE STATION | ▢▢✕ |

SUB BRIGHT RED ADJUSTMENT

UP   DOWN

3

4 ── NEXT   RETURN

SUB CONTRAST RED ADJUSTMENT screen.

| MANUAL ADJUSTMENT PROGRAM for SERVICE STATION | ▢▢✕ |

SUB CONTRAST RED ADJUSTMENT

UP   DOWN

5
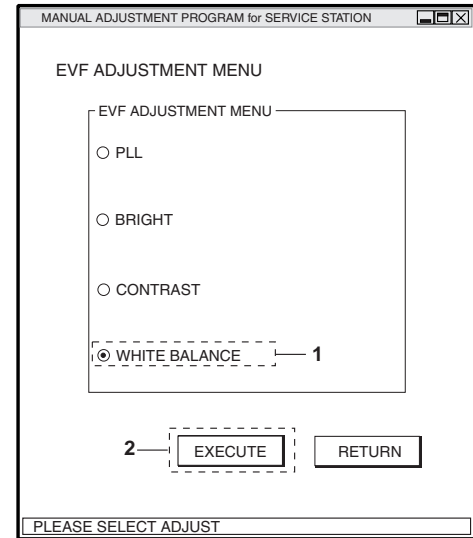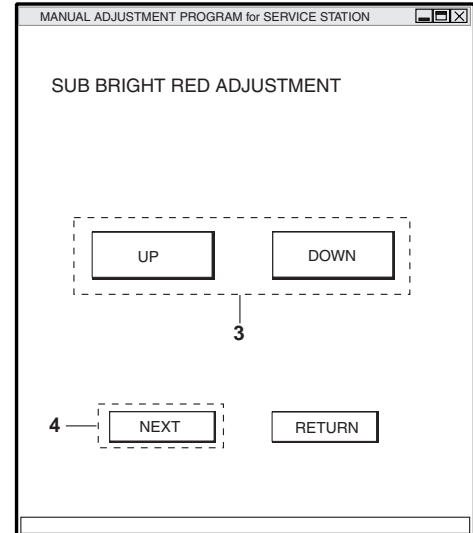
6 ── NEXT   RETURN
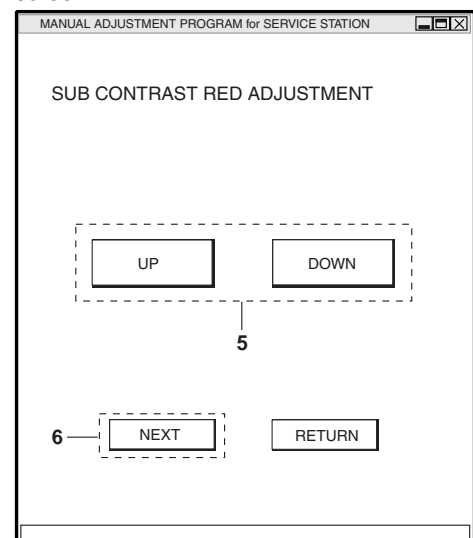
7) Connect the oscilloscope CH1 to "EVF-B (pin 6)" of Skylark Connection jig.

8) Use the same procedure as in step 3) to equalize levels a and b of the waveform. (See Fig. 6-4-16)

9) After step 8) is complete, be sure to click the NEXT button, and then proceed with the SUB CONTRAST BLUE ADJUSTMENT screen.

10) Use the same procedure as in step 3) to equalize levels c and d of the waveform.

11) After step 10) is complete, be sure to click the SAVE button and then proceed with the BL DET screen. Note that clicking the RETURN button will restore the EVF ADJUSTMENT MENU screen to the status before the adjustment was performed.

12) Click either button on the BL DET screen according to the voltage checked in "(1) BL DET Check": "High" button when the check value is 5 V, or "Low" button when it is 0 V.

13) When BL DET is complete, the ADJUSTMENT FINISHED dialog will appear: Click the OK button in dialog to restore the EVF ADJUSTMENT MENU screen.

14) Click the RETURN button in EVF ADJUSTMENT MENU to restore the ADJUST MENU screen.

SUB BRIGHT BLUE ADJUSTMENT screen.
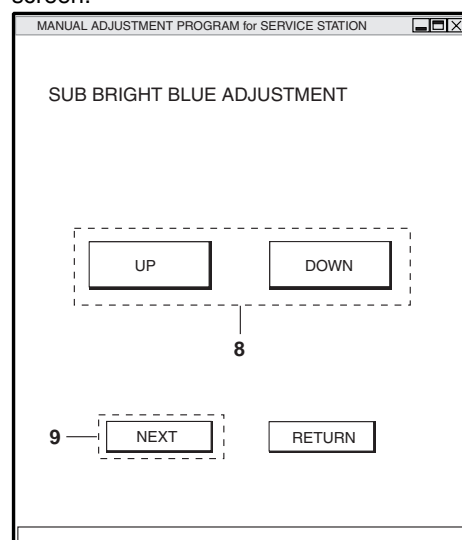
SUB CONTRAST BLUE ADJUSTMENT screen.
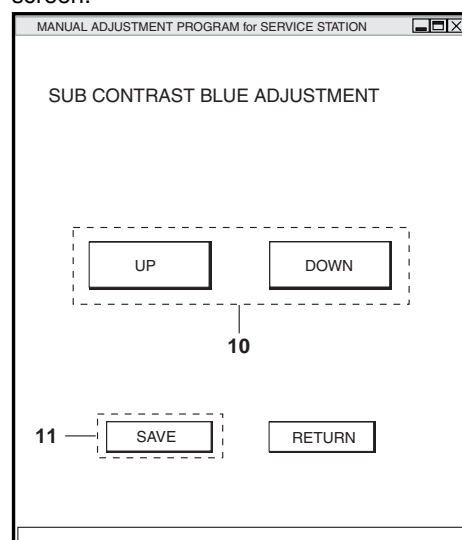
BL DET screen.
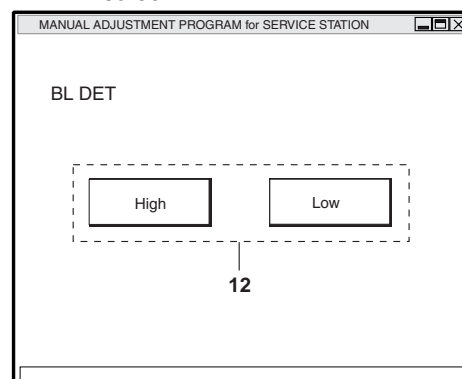
ADJUSTMENT FINISHED dialog

6 - 43
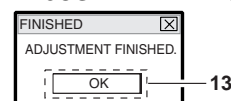
7-1 Exploded Views

7-1-1 Main Section

Note: Components without any numbers in exploded views had not been assigned as service parts as of the date of issue of this manual.

7-1-2 LCD Block Section

132

133

⚠ 135

MR CIRCUIT
BOARD
[Component
Replacement]

136

907   137

914

LCD CIRCUIT
BOARD
[Component
Replacement]

914

138
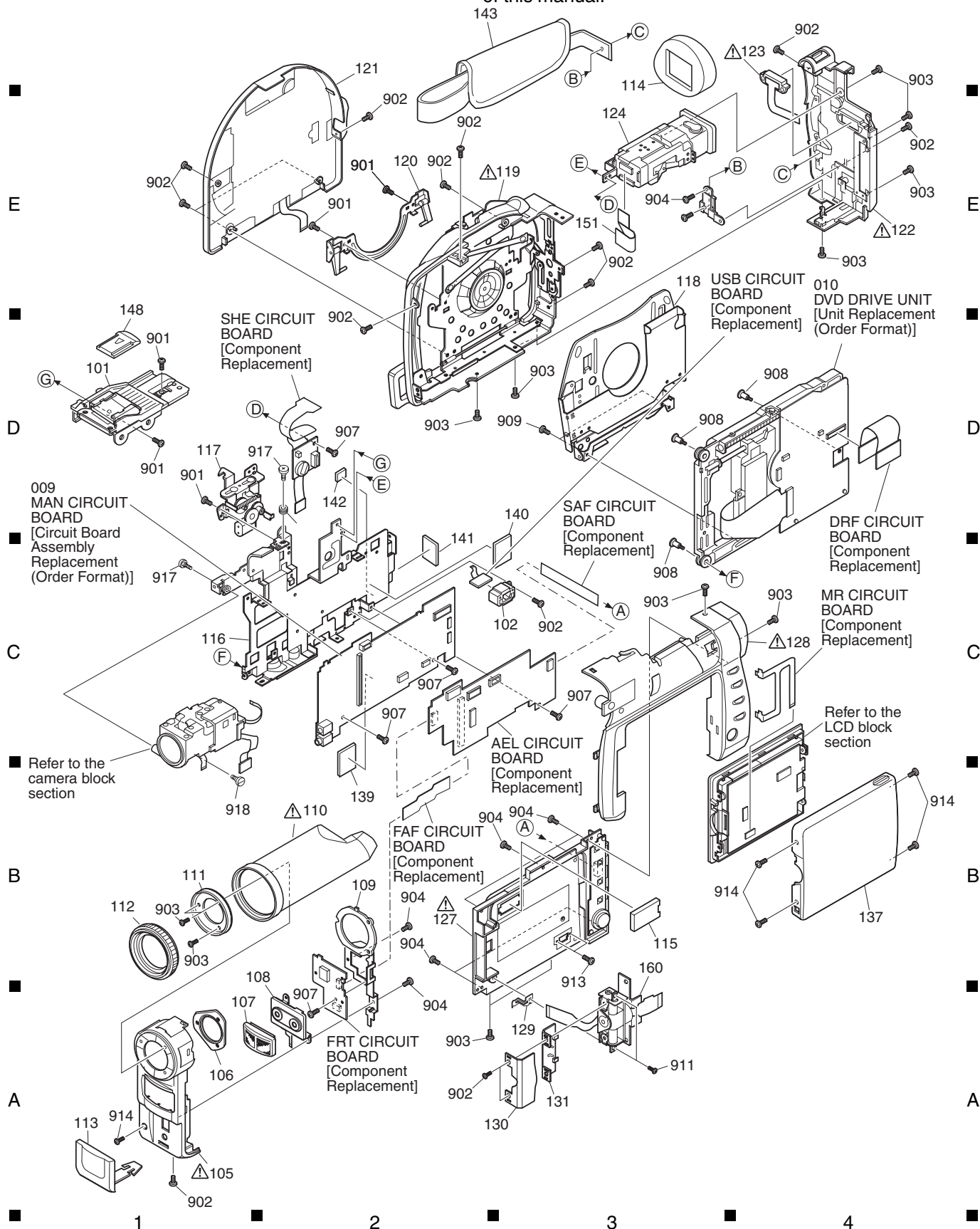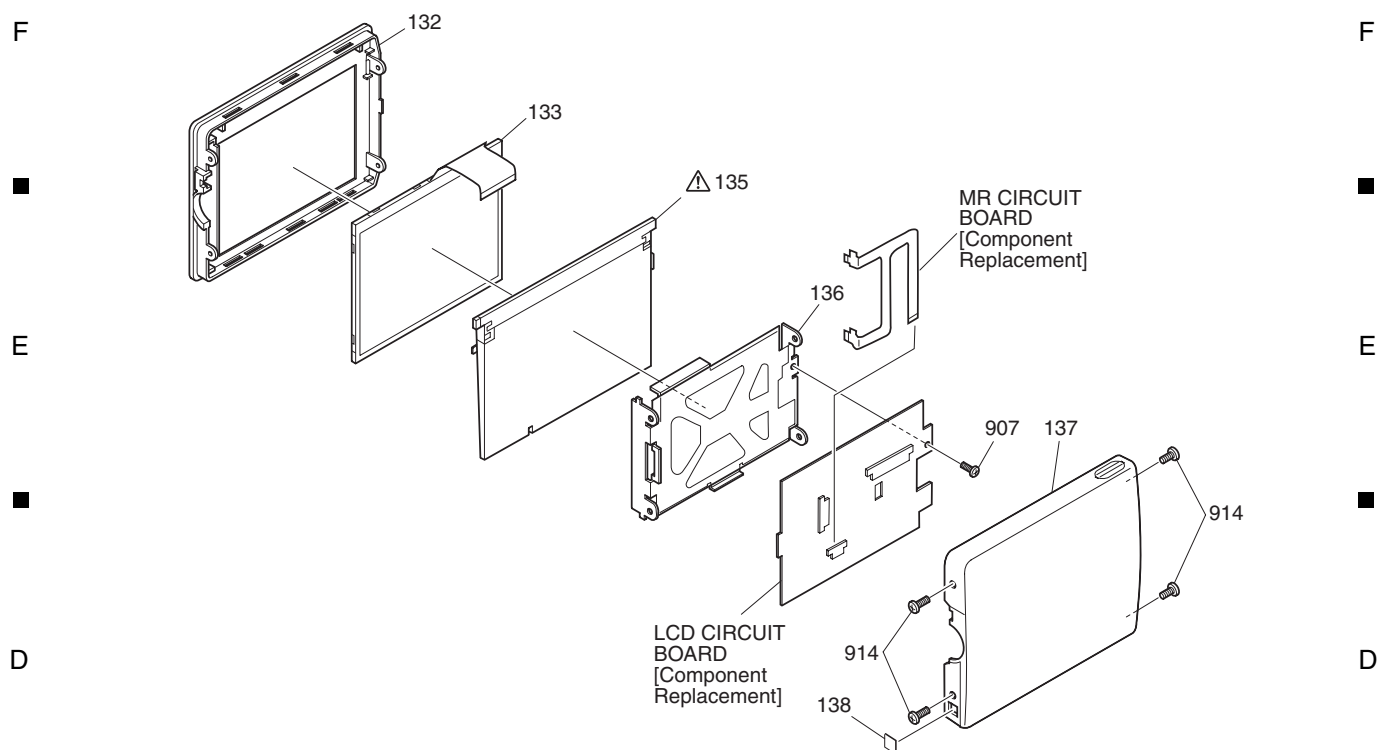
7-1-3 Camera Block Section

SEN CIRCUIT
BOARD
[Component
Replacement]

916

145

125

144

146

904

126

904

GYR CIRCUIT
BOARD
[Component
Replacement]
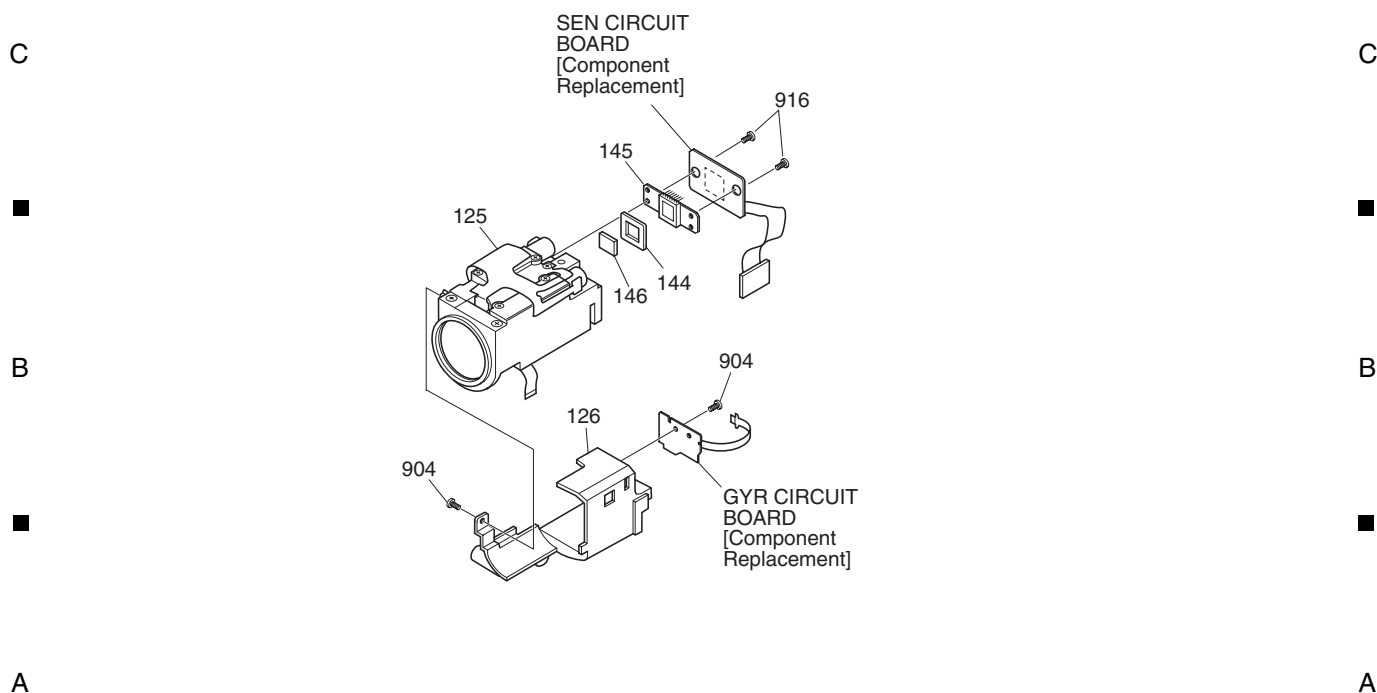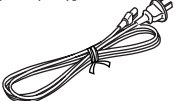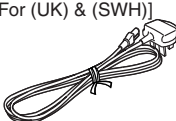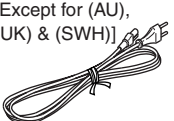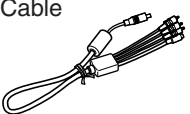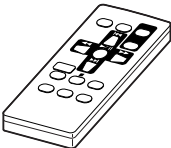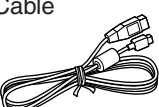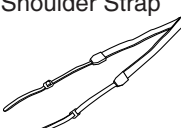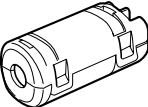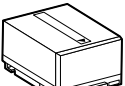
7-2 Replacement Parts List

7-2-1 Mechanical Parts List

SYMBOL NO	P-NO	DESCRIPTION	SYMBOL NO	P-NO	DESCRIPTION
		MECHANISM SECTION			**ACCESSORIES**
009		PWB ASSY MAN-H	⚠ 801		ADPTOR,AC
010		DVD DRIVE MECHA(PC3A)	⚠ 802		CORD,AC [For (AU)]
			⚠ 802		CORD,AC [For (UK)&(SWH)]
101		TERMINAL,SHOE	⚠ 802		CORD,AC [Except For (AU),(UK)&(SWH)]
102		HOLDER,USB	803		CORD,AVS
⚠ 105		CASE,FRONT			
106		RING(O)	804		CORD,DC
107		COVER,MICROPHONE	806		REMOTE HAND SET
			807		CABLE,USB
108		MICROPHONE	809		STRAP,SHOLDER
109		PLATE	810		CAP,LENS
⚠ 110		COVER,LENS			
111		PIECE,FILTER	811		CORE
112		FOOD AS			
			---		HOLDER,DISC
113		COVER,JACK			
114		CAP,EYE			
115		CASE,ADJUSTMENT			
116		FRAME,MECHA			
117		LOCK UNIT			
118		LOADER ASSY			
⚠ 119		CASE,SIDE(R)			
120		BRACKET,LINK			
121		COVER,DISC			
⚠ 122		COVER,REAR			
⚠ 123		TERMINAL,BATTERY			
124		EVF UNIT			
125		LENS ASSY			
126		FRAME,LENS			
⚠ 127		CASE,SIDE(L)			
⚠ 128		COVER,L			
129		PLATE,EARTH(L)			
130		COVER,FULCRUM(U)			
131		COVER,FULCRUM(B)			
132		CASE,LCD(B)			
133		LCD			
⚠ 135		LIGHT,BACK			
136		FRAME,LCD			
137		CASE,LCD(U)			
138		SHEET,MR			
139		HEATSINK			
140		HEATSINK			
141		HEATSINK			
142		HEATSINK			
143		STRAP,HAND			
144		SHEET			
145		SENSOR ASSY			
146		CRYSTAL			
148		COVER,SHOE			
151		CONNECTOR			
160		FULCRUM ASSY			
901		SCREW(1.6X2)			
902		SCREW(1.6X2.5)			
903		SCREW(1.7X4)			
904		SCREW(1.7X4)			
907		SCREW(M1.7X3S)			
908		SCREW(M1.7W)			
909		SCREW(M1.7)			
911		SCREW(2X5)			
913		SCREW(1.7X4)			
914		SCREW(1.7X4)			
916		SCREW(1.7X5)			
917		SCREW(1.X4)			
918		SCREW(2X2.5)			
919		SCREW(2X5)			

Accessories

⚠ 801 AC Adapter/ Charger DZ-ACS1		⚠ 802 Power Cable [For (AU)]	
⚠ 802 Power Cable [For (UK) & (SWH)]	⚠ 802 Power Cable [Except for (AU), (UK) & (SWH)]		803 AV/S Output Cable
804 DC Power Code	806 Infrared Remote Control DZ-RM3W		
807 PC Connection Cable	809 Shoulder Strap		810 Lens Cap and Lens Cap String
811 Ferrite Core	Battery of accessory DZ-BP14S		Disc Holder

THE UPDATED PARTS LIST

FOR THIS MODEL IS

AVAILABLE ON ESTA

Schematic, Circuit Board and Block Diagrams

1. Wiring Diagram

2-1 SEN Schematic Diagram

CODE	PART NAME
QC	2SC2620
8B	UN9212

★ONE VOLTAGE:PB OR REC MODE
 TWO VOLTAGES:PB AND (REC) MODE

SEN

IC1001
ICX288BK
CCD
(IMAGE SENSOR)

PG1001				
1	GND	VSUB-CON	16	
2	CCD-OUT	-7V	15	
3	GND	GND	14	
4	15V	GND	13	
5	V1	RG	12	
6	V2	H1	11	
7	V3	H2	10	
8	V4	SUB	9	

To
MAN
PG2001

2-2 FRT Schematic Diagram

2-3 FAF Schematic Diagram

To MIC

PG1802
1	MIC-(R)
2	R-GND
3	M-GND
4	MICIN(L)
5	L-GND

To FAF CN1801

PG1801
1	L-GND
2	MICIN(L)
3	MICIN(R)
4	R-GND
5	C5V
6	TALLYLED
7	IR-IN
8	IR-GND
9	WB_IR
10	WB-GND

CODE	PART NAME
LE	2SC5383T11
1ZS	2SD2345-S
64	DTC114YE
MO	MA132WA

＊ONE VOLTAGE:PB OR REC MODE
　TWO VOLTAGES:PB AND (REC) MODE

R1812 0

L1801 22μ

R1813 470

R1801 470

LD1801
LN1251CAL-23

C1802
4.7μ/6.3

R1808
39k

C1801
47μ/10

IC1801
RS-21
IR RECEIVER

Vout Vcc   2.5 4.7
1   4

GND2 GND1
2   3   0   0

3.6
(0)
0(3)

Q1801
[64]   0

F.GND

R1802 0   F.GND

R1803
2.2M

C1803
0.22μ

Q1803
[1ZS]

ID1802
[MO]

R1811

10M

Q1802
[LE]

4.7

0   0

4.7

0

C1804
0.22μ

R1805
330K

R1807
1.8K

R1806
4.7K

PD1801
PD410PI
INFRARED RAYS
OPTICAL

FRT

CN1801
L-GND	1
MICIN(L)	2
MICIN(R)	3
R-GND	4
C5V	5
TALLYLED	6
IR-IN	7
IR-GND	8
WB_IR	9
WB-GND	10

CN7003
1	A.GND
2	MICIN(L)
3	MICIN(R)
4	A.GND
5	C5V
6	TALLY
7	IR-IN
8	GND
9	WB_IR
10	GND

To
FRT
PG1801

To
BOARD To BOARD
[AEL]
PG7003

FAF

2-4 SAF Schematic Diagram

CN8012
GND	1
SELECT	2
───	3
───	4
KEY1	5
GND	6

CN7004
1	GND
2	SELECT
3	───
4	───
5	KEY1
6	GND

To
L CASE
(OPERATION SW)
PG8012

To
BOARD To BOARD
PG7004

SAF

- 3 -

GYR

V_MOVE
IC1401
EMC-03MA

① Vref VOUT ④
② GND VCC ③

R1401 3.9k R1403 3.3k

C1401 15/4
C1403 0.1
C1405 0.015
C1407 0.015
C1409 4.7

CODE	PART NAME
5H	XP4501

*ONE VOLTAGE:PB OR REC MODE
 TWO VOLTAGES:PB AND (REC) MODE

H_MOVE
IC1402
EMC-03MB

① Vref VOUT ④
② GND VCC ③

R1402 3.9k R1404 3.3k

C1402 15/4
C1404 0.1
C1406 0.015
C1408 0.015
C1410 4.7

F. GND

R1412 390k

R1410 20k

R1406 100 R1408 680k

C1412 2200p

Q1401 [5H]

IC1403
NJU7018V
DET

VCC
GND

C1413 1μ/10

R1415 10k
R1414 1k
R1413 1k

R1405 100 R1407 680k

C1411 2200p

R1409 20k

R1411 390k

CN1401
1	3V
2	V-MOVE
3	GYRO-RST
4	H-MOVE
5	GND
6	GND

To
SHE
PG0154

SHE

CN0152
SHOE-GND	1
—	2
GND	3
—	4
SHOE-DET	5
SHOE-CLK	6
SHOE-SDA	7
SHOE-UNR	8

To
ACCESSORY
SHOE

BA1801
VL1220/F3A

F. GND

PG0153
EVF5V	1
VDD	2
BL_DET	3
GND	4
GND	5
VST	6
VCK	7
EN	8
STB	9
HST	10
HCK2	11
HCK1	12
B	13
R	14
G	15
COM	16

To
EVF
UNIT

F. GND

PG0154
6	GND
5	GND
4	H-GYRO
3	GYRO-RST
2	V-GYRO
1	3V

To
GYR
CN1401

PG0151
30	GND_EVF
29	GND_EVF
28	EN
27	VDD
26	VCK/HD
25	EVF5V
24	VST/EVF_Y
23	B/U_3V
22	BL_DET
21	SHOE_UNREG
20	SHOE_SDATA
19	SHOE_SCLK
18	SHOE_DET
17	SHOE_GND
16	GND
1	GND_EVF
2	GND_EVF
3	GND_EVF
4	STB/VD
5	HST/PS
6	HCK2/VREG
7	HCK1/ITO
8	EVF_B
9	EVF_R
10	EVF_G
11	COM/EVF 3V
12	V_GYRO
13	GYRO_RST
14	H_GYRO
15	C3V

To
BOARD To BOARD
[AEL]
PG7009

- 4 -

2-7 Board To Board [AEL] Schematic Diagram

CODE	PART NAME
FR/FQ/FS	2SA1774RS
H9	UMH9N
64	DTC114YE
336	NDS336P
MP	MA133

*ONE VOLTAGE:PB OR REC MODE
 TWO VOLTAGES:PB AND (REC) MODE

BOARD To BORAD [AEL]

LENS DRIVE [AEL]

AUDIO [AEL]

EVF [AEL]

IC3701 CXA3503R EVF DRIVER

CODE	PART NAME
FR/FQ/FS	2SA1774RS
64	DTC114YE
2	HVU200A

*ONE VOLTAGE:PB OR REC MODE
TWO VOLTAGES:PB AND (REC) MODE

	TYPE 8A	TYPE 8E
C3706	0.01uF	Not Provided
C3707	0.01uF	Not Provided
C3708	0.01uF	Not Provided
C3736	Not Provided	0.01uF
C3737	Not Provided	0.01uF
C3738	Not Provided	0.01uF
R3707	100k	39k
R3708	100k	150k

* R3707
100k : [TYPE 8A]
33k : [TYPE 8E]

* R3708
100k : [TYPE 8A]
150k : [TYPE 8E]

To
BOARD To BOARD
15B-27B

To
BOARD To BOARD
1B-14B

[TYPE 8E]
[TYPE 8A]

2-11 LCD Schematic Diagram

CODE	PART NAME
FR	2SA1774RS
64	DTC114YE

★ONE VOLTAGE:PB OR REC MODE
TWO VOLTAGES:PB AND (REC) MODE

IC3401
CXA3582R
LCD DRIVER

LCD

2-12 MR Schematic Diagram

★VOLTAGE:READ AND (WRITE) MODE.

IC3401
AN48800A

2 3.0
   0
1 0 3

REVERSE
SW

IC3402
AN48800A

2 3.0
   0
1 3.0 3

OPEN/CLOSE
SW

CN3401

1	C3V
2	GND
3	REV
4	C3V
5	GND
6	OPEN

To
LCD
PG3403

MR

2-13 USB Schematic Diagram

JK8101

VCC	1
−DATA	2
+DATA	3
──	4
GND	5
GND (BODY)	6

PC TERMINAL

BL8101
180UH

R8101
22K

BL8102
0

CN8101

1	USB5V
2	USB−GND3
3	DATA−
4	DATA+
5	USB−GND2
6	USB−GND1

To
MAN
PG5001

USB

2-14 DRF Schematic Diagram

PG2301

1	GND	GND	70
2	ZCS3FX	ZDASP	69
3	DA2	ZCS1FX	68
4	ZPDIAG	DA0	67
5	ZIOCS16	DA1	66
6	ZDMACK	HINTAQ	65
7	GND	GND	64
8	CSEL	IORDY	63
9	GND	DIOR	62
10	GND	DIOW	61
11	ACC_LED	DMARQ	60
12	GND	GND	59
13	DD15	DD0	58
14	DD14	DD1	57
15	DD13	DD2	56
16	DD12	DD3	55
17	DD11	DD4	54
18	DD10	DD5	53
19	DD9	DD6	52
20	DD8	DD7	51
21	GND	RESET	50
22	5VFB	GND	49
23	GND	HEATRAN	48
24	GND	GND	47
25	3.3V	EJECT_SW	46
26	3.3V	SYSRESET	45
27	3VFB	CV_OPEN	44
28	2.5V	2.5V	43
29	GND	GND	42
30	5VA	5VD	41
31	5VA	5VD	40
32	5VP	5VP	39
33	5VP	5VP	38
34	GND	GND	37
35	GND	GND	36

To
MAN
PG2002

PG2302

70	GND	GND	1
69	ZDASP	ZCS3FX	2
68	ZCS1FX	DA2	3
67	DA0	ZPDIAG	4
66	DA1	ZIOCS16	5
65	HINTAQ	ZDMACK	6
64	GND	GND	7
63	IORDY	CSEL	8
62	DIOR	GND	9
61	DIOW	GND	10
60	DMARQ	ACC_LED	11
59	GND	GND	12
58	DD0	DD15	13
57	DD1	DD14	14
56	DD2	DD13	15
55	DD3	DD12	16
54	DD4	DD11	17
53	DD5	DD10	18
52	DD6	DD9	19
51	DD7	DD8	20
50	RESET	GND	21
49	GND	5VFB	22
48	HEATRAN	GND	23
47	GND	GND	24
46	EJECT_SW	3.3V	25
45	SYSRESET	3.3V	26
44	CV_OPEN	3VFB	27
43	2.5V	2.5V	28
42	GND	GND	29
41	5VD	5VA	30
40	5VD	5VA	31
39	5VP	5VP	32
38	5VP	5VP	33
37	GND	GND	34
36	GND	GND	35

To
DISC DRIVE UNIT
(DRV-PG9701)

DRF

2-15 IC Block Diagram

IC3401
CXA3582R
LCD DRIVER

B/B-Y (24) R/R-Y (23) G/Y (22) Vcc1 (21) OSD G (20) OSD R (19) OSD B (18) NC (17) SIG.C (16) PSIG DC DET (15) PSIG OUT (14) Vcc2 (13)

SYNC IN (25)

PICTURE Gain PICTURE   MODE

ATT

PICTURE

MUE COLOR   DL   DL   MATRIX

DA OUT (26)   DA   ←DA

MUE COLOR

REF (27)   REF

R,G,B

FILTER (28)   LPF TRAP   SUB CONTRAST   CONTRAST   USER-BRIGHT   GAMMA1 GAMMA2   SUB-BRIGHT   OSD

CK CK CK   CK   CK   CONTRAST   USER-BRIGHT   γ1 γ2   R-BRIGHT B-BRIGHT

PSIG-BRIGHT

PSIG-BRIGHT   PSIG-BRIGHT   PSIG-Power SW

12 G OUT
11 G DC DET
10 R OUT
9 R DC DET
8 B OUT
7 B DC DET

SYNC SEL

SYNC SEP

RPD (29)   PHASE COMPARATOR   CLOCK GENERATOR

GND1 (30)

SEN (31)   SERIAL I/F DAC

SCK (32)

SDAT (33)

S/H   BLIM   BLIM

3V ANALOG PART

PRP

COM   COM   6 COM

12V ANALOG PART   5 GND2

IR   MP   CK   HD_CSYNC   BLK XCLP FRP SH1 SH2 SH3 SH4 XSTBY1   XSTBY2

3V DIGITAL PART

SERIAL I/F   H.FILTER

4 TEST
3 VST
2 VCK
1 EN

VD (34)

PLL COUNTER   TIMING GENERATOR

XCLK (35)

PCF (36)

+3V   0V   +3V   0V

(37)   (38)   (39)   (40)   (41)   (42)   (43)   (44)   (45)   (46)   (47)   (48)
VDD   HDO   VDO   RGT   Vss   HCK1   HCK2   HST   VDD   WIDE   DWN   Vss

IC6103
AN2903FJQ
VIDEO/AUDIO AMP

48 47 46 45 44 43 42 41 40 39 38 37 36 35 34 33

GND   DY   AND   IF   GND   GCA ±3dB

15dB

49

50   DV   15dB

51   MIX   DDS W   DDS B   CLAMP

52

53   DC   15dB

54   DDS B   GCA ±3dB   BPF   BUFF   ATT -9dB   GND 27

55   S-DC   26

56   EVR CTL 25   VREF

57   EVR   MUTE   LPF 24

58 VREF SP   EVR   MUTE   LPF 23

59   VCC 22

60   MUTE TC 21

61 VCC SP   MUTE   MUTE   MUTE CTL 20

62

63 GND SP   DC SHIFT   DC SHIFT DC SHIFT   DC SHIFT   MUTE CTL 19

64   18

VCC   2.2K   17

1/2VCC

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

ATT -9dB   LPF   BUFF   32
31
30
29
28

IC3701
CXA3503R
EVF DRIVER

Top pins:
Vss (54) Vss — Vss (53) Vss — TST14 (52) — TST13 (51) — TST12 (50) — TST11 (49) — TST10 (48) — TST9 (47) — DWN (46) — POF (45) — TST8 (44) — GND3 (43) GND3 — COM (42) — Vcc3 (41) +12.0V — TST7 (40) — TST6 (39) — TST5 (38) — Vcc2 (37) +12.0V

Left pins:
VDD (55) +3.0V
TST15 (56)
OSD B (57)
OSD R (58)
OSD G (59)
BLK (60)
HCK1 (61)
HCK2 (62)
Vcc1 (63) +3.0V
HST (64)
RGT (65)
EN (66)
STB (67)
VCK (68)
FIL -N (69)
B/B-Y (70)
G/Y (71)
R/R-Y (72)

Right pins:
G OUT (36)
G DC DET (35)
R OUT (34)
R DC DET (33)
B OUT (32)
B DC DET (31)
SIG.C (30)
GND2 (29) GND2
TST4 (28)
HDO (27)
VDO (26)
XCLR (25)
RPD (24)
Vss (23) Vss
CKI (22)
CKO (21)
VDD (20) +3.0V
VDD (19) +3.0V

Bottom pins:
Vss (1) Vss
FIL OUT (2)
SYNC IN (3)
SYNC OUT (4)
CSYNC/HD (5)
DA OUT (6)
TST1 (7)
F ADJ (8)
GND1 (9) GND1
VD (10)
VST (11)
TST2 (12)
TST3 (13)
SCK (14)
SEN (15)
SDAT (16)
R INJECT (17)
Vss (18) Vss

Internal blocks:
OSD RGB
S/H
S/H GEN
CONTRAST
LPF FILTER
USER-BRIGHT
CONT
U-BRT
TRAP
FILTER BIAS
GAMMA
γ1 γ2 WHITLIM SUB-CONT R SUB-CONT B
LPF
CLAMP
BLK-LIM
BLKLIM
MODE   G R B
SUB-BRIGHT
SUB-BRT R SUB-BRT B
CLAMP   G R B
MATRIX
POL SW
PIC-G
PICTURE   DL1   DL1
PIC-F
HUE
HUE COLOR
CLAMP   CLP
HCK GEN
HCOUNTER HPULSE GEN
MODE
H.FILTER
SYNC SEP
DA   Buf
PLL COUNTER
PULSE ELM
V CONTROL V POSITION
HSYNC DET H SKEW DET
V COUNTER
V SEP
CK CONTROL   MCK   CLK
HDO GEN
VDO GEN
PHASE COMPARATOR
S/P CONV REGISTER DAC
Buf
Buf
Buf
COM-DC
SIG.C
Buf

- 12 -

3. Circuit Board Diagrams
3-1 SEN Circuit Board Diagram

3-2 SHE Circuit Board Diagram

SEN -SIDE A-
[PATTERN No.JD1157-2]

SEN -SIDE B-
[PATTERN No.JD1157-2]
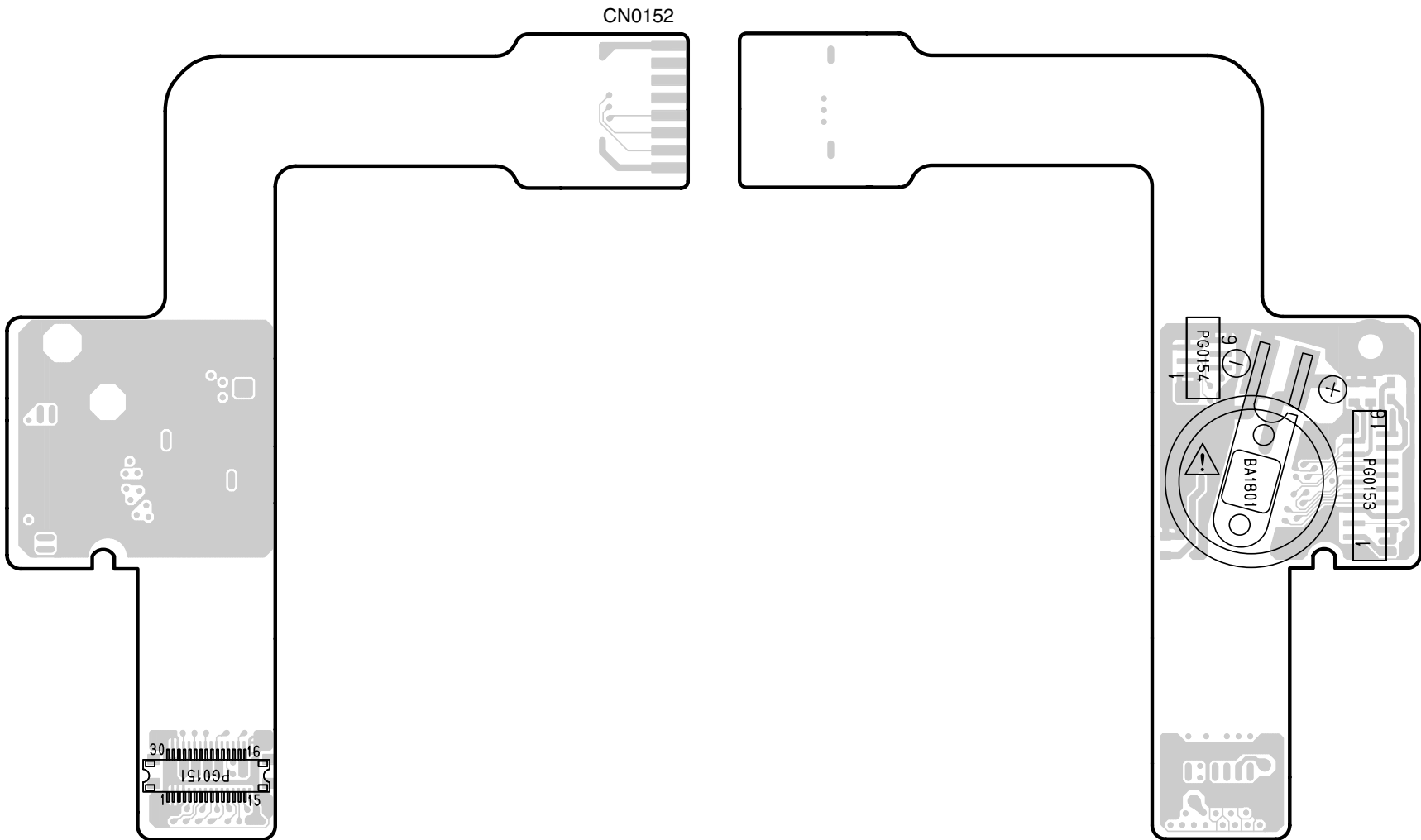
SHE -SIDE A-
[PATTERN No.JD1157-2]

SHE -SIDE B-
[PATTERN No.JD1157-2]

3-3 FRT Circuit Board Diagram
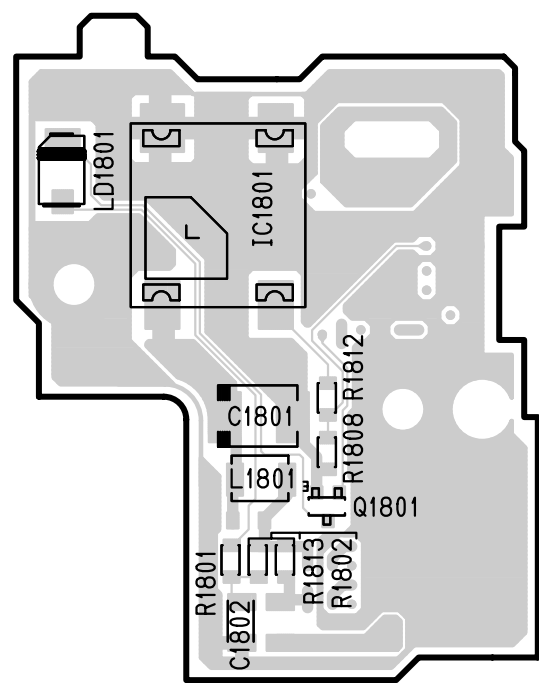
FRT -SIDE A-
[PATTERN No.JD1157-2]
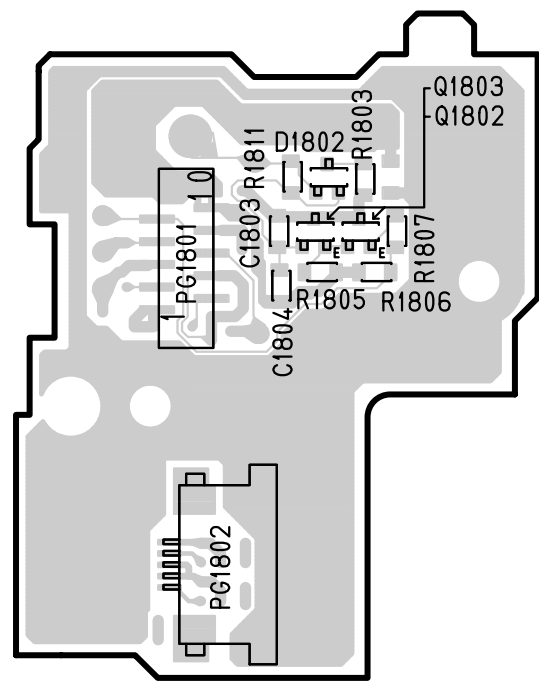
FRT -SIDE B-
[PATTERN No.JD1157-2]

3-4 FAF, SAF Circuit Board Diagrams
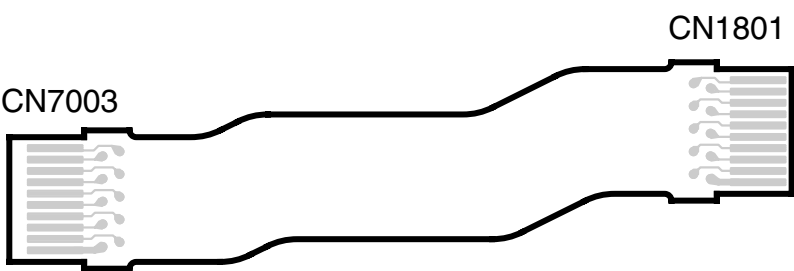
CN1801

CN7003

FAF -SIDE A-
[PATTERN No.JD1157-2]
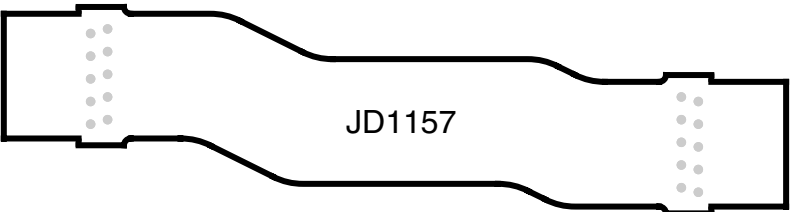
JD1157

FAF -SIDE B-
[PATTERN No.JD1157-2]
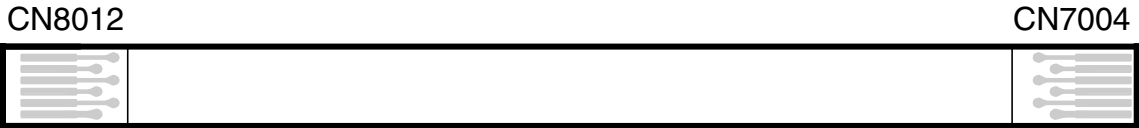
CN8012

CN7004

SAF -SIDE A-
[PATTERN No.JD1157-2]
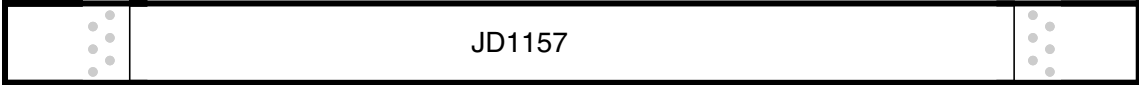
JD1157

SAF -SIDE B-
[PATTERN No.JD1157-2]
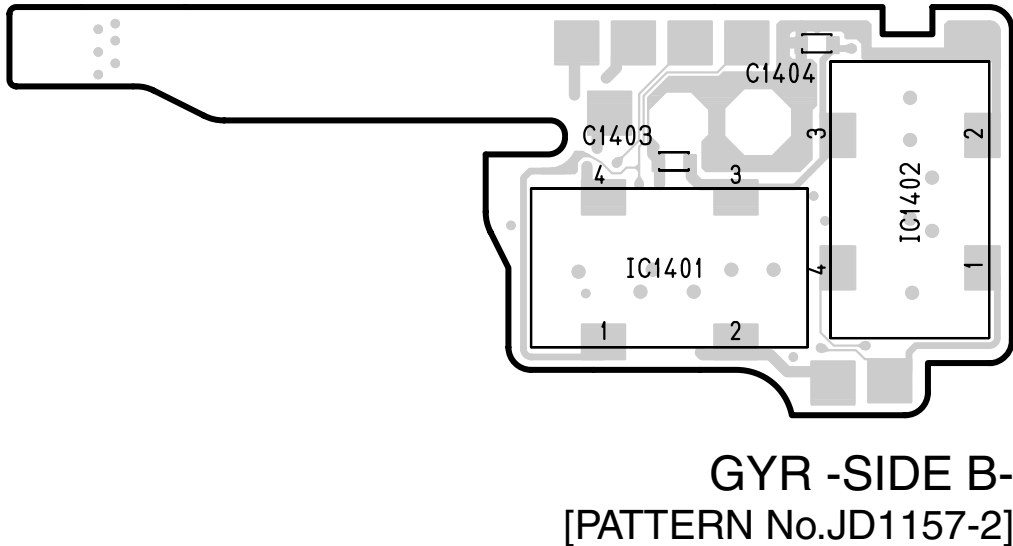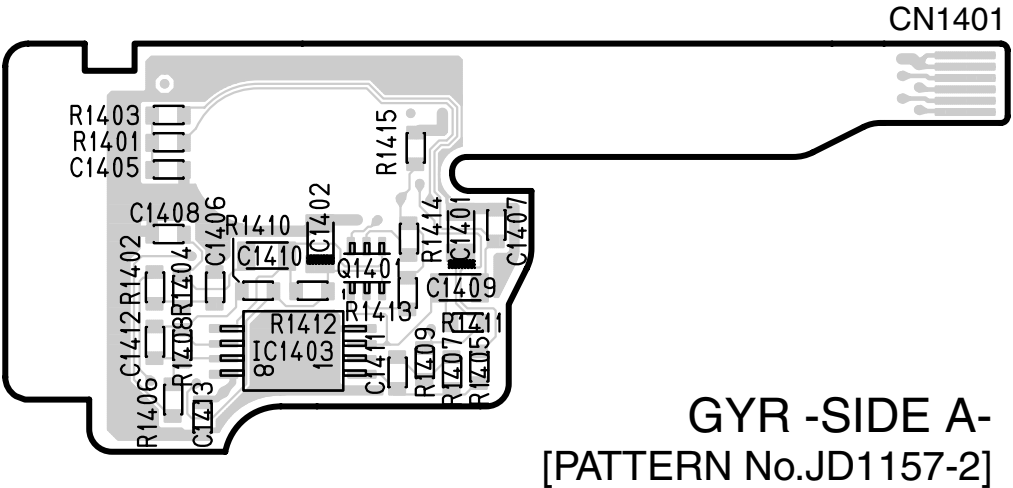
CN1401

R1403
R1401
C1405

R1415

C1408
C1410
R1410
C1402
R1406
C1412 R1402
R1413
Q140
R1414
C1401
C1406
C1407
C1409

R1412
IC1403

GYR -SIDE A-
[PATTERN No.JD1157-2]

PG2301

DRF -SIDE A-
[PATTERN No.JD1157-2]

PG2302

DRF -SIDE B-
[PATTERN No.JD1157-2]

C1404

C1403

IC1402

IC1401

GYR -SIDE B-
[PATTERN No.JD1157-2]

CN3401

CN8101

JK8101

USB -SIDE A-
[PATTERN No.JD1157-2]

IC3402

IC3401

BL8102
BL8101
R8101

USB -SIDE B-
[PATTERN No.JD1157-2]

MR -SIDE A-
[PATTERN No.JD1157-2]

MR -SIDE B-
[PATTERN No.JD1157-2]
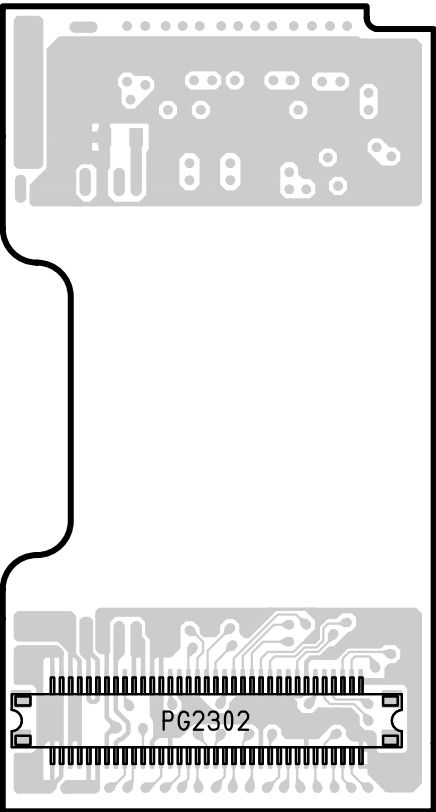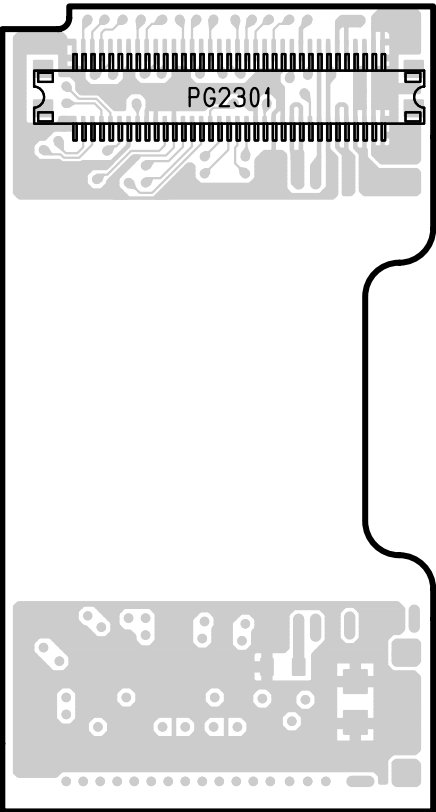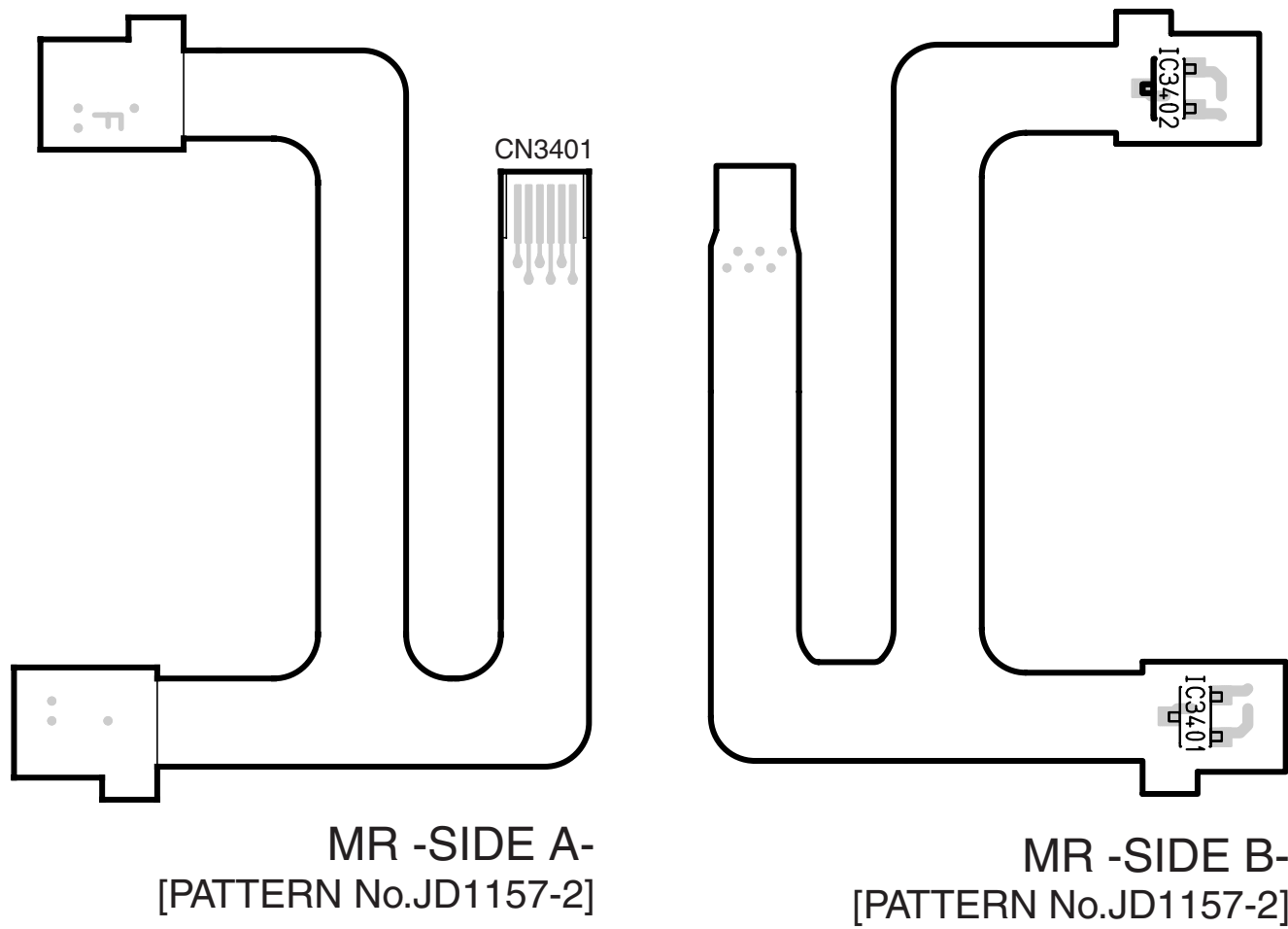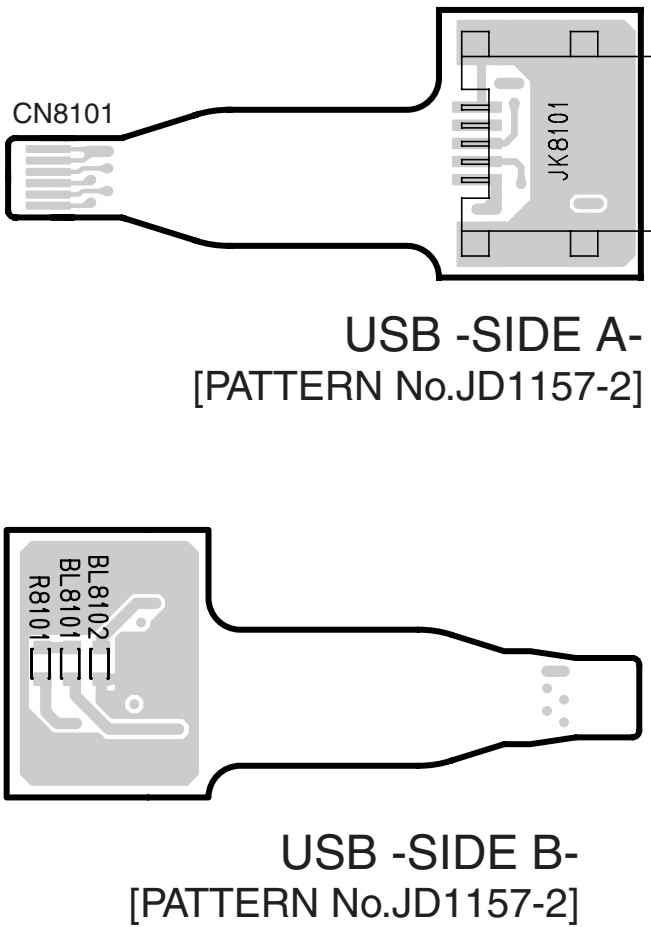
3-9 AEL Circuit Board Diagram

	TYPE 8A	TYPE8E
C3706	0.01uF	Not Provided
C3707	0.01uF	Not Provided
C3708	0.01uF	Not Provided
C3736	Not Provided	0.01uF
C3737	Not Provided	0.01uF
C3738	Not Provided	0.01uF
R3707	100k	39k
R3708	100k	150k

AEL -SIDE A-
[PATTERN No.JA2125-2]
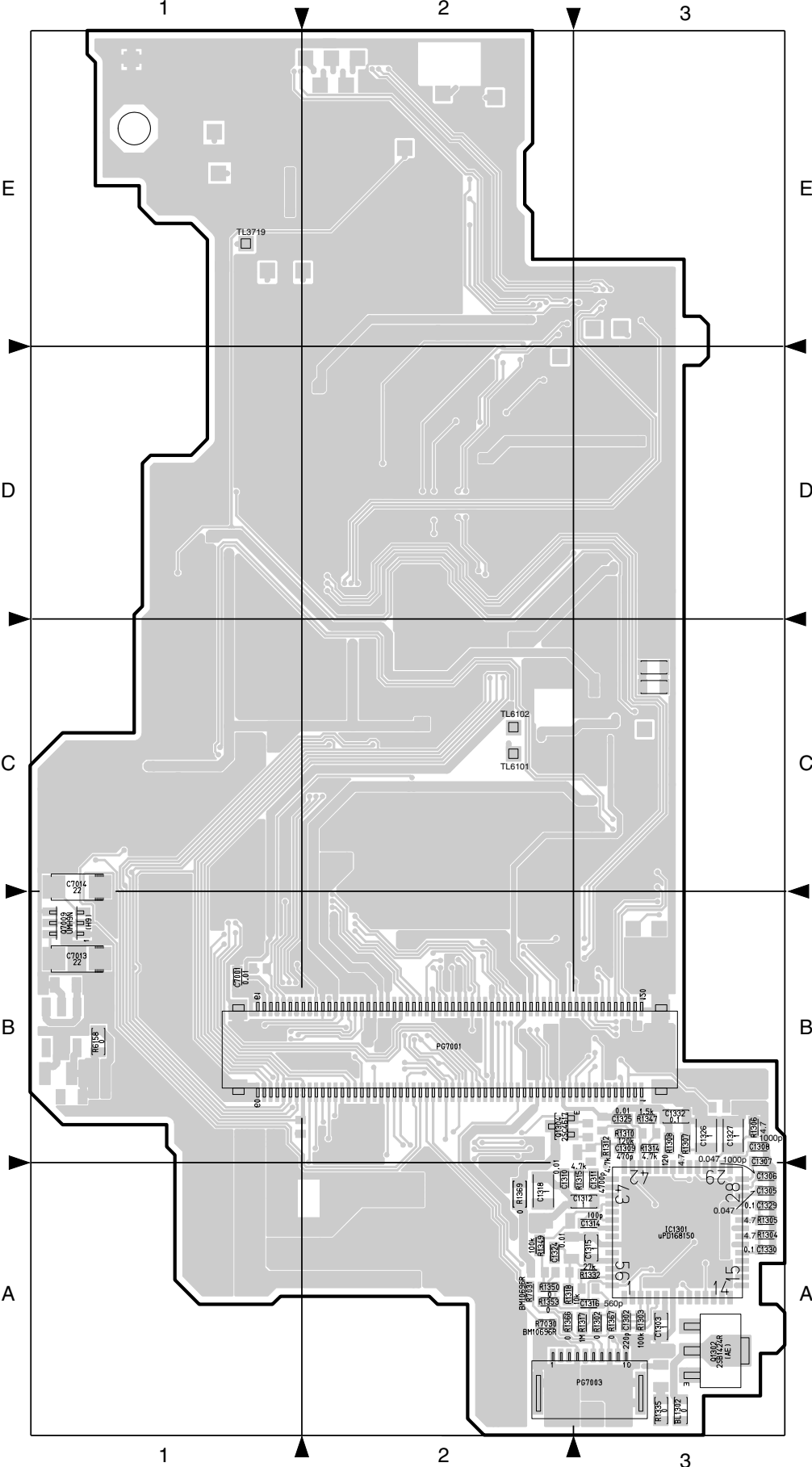
AEL -SIDE B-
[PATTERN No.JA2125-2]

3-10 LCD Circuit Board Diagram

LCD
[PATTERN No.JA2104-4]

Information of MAN, DRV, SID and HDM Circuit Boards

During servicing, replace the entire MAN circuit board, and the entire disc drive unit, including the DRV, SID and HDM circuit boards.

Because of this servicing method, this service manual includes only the simplified circuit board diagrams, and does not include any schematic circuit diagrams.

The simplified circuit board diagrams show the major voltage values: Refer to them during troubleshooting.

MAIN -SIDE A-
[PATTERN No.JA2089-6]

MAIN -SIDE B-
[PATTERN No.JA2089-6]

3-12 DRV Circuit Board Diagram

DRV -SIDE A-
[PATTERN No.JA2084-4]
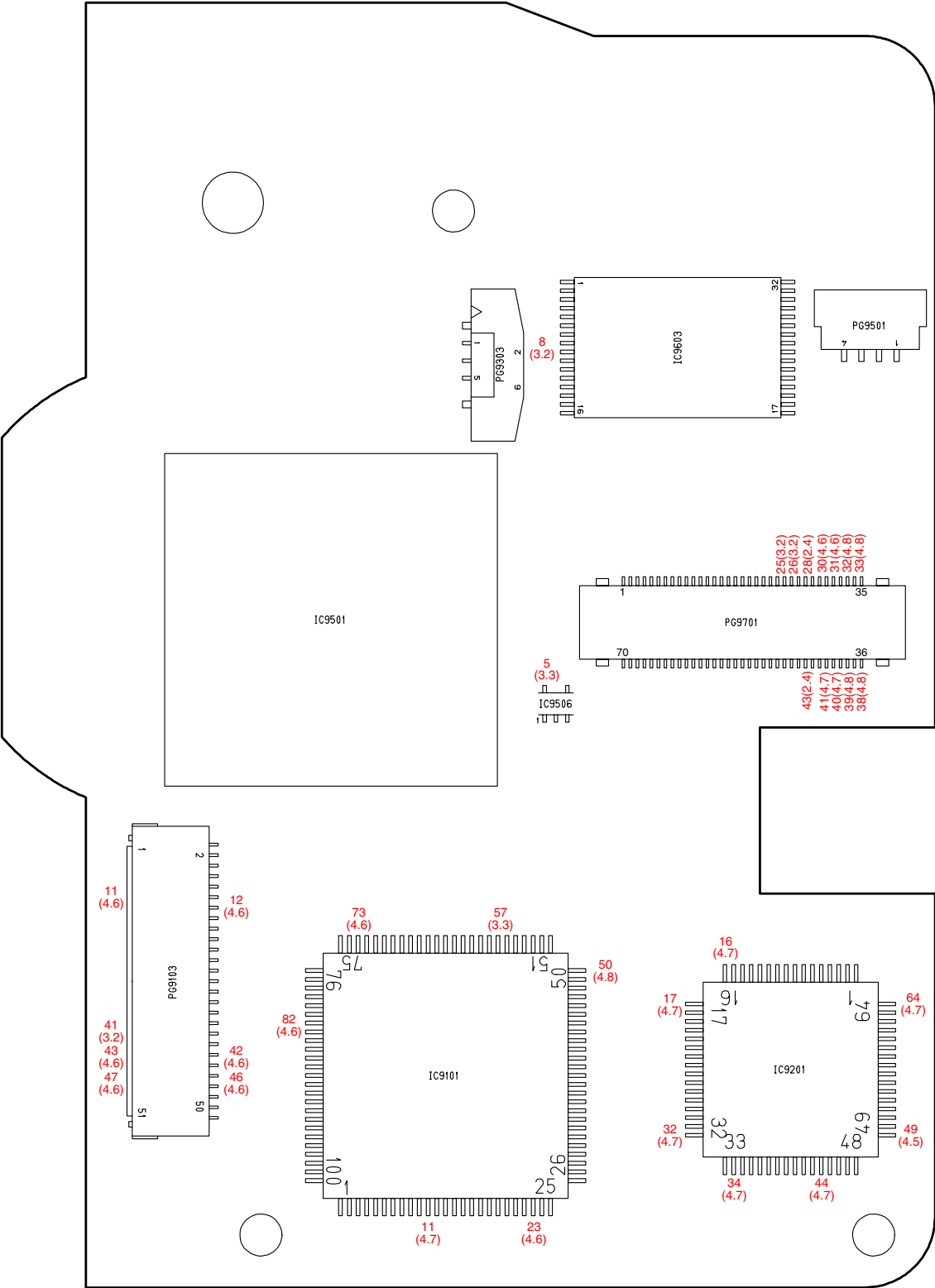
DRV -SIDE B-
[PATTERN No.JA2084-4]

Note: Voltage values are in reading status.
　　　Example: 24 (4.7): Terminal no. (voltage value)
　　　Supplement: Since the DVD drive is intermittently operated, set to the reading status in which
　　　laser light is emitted from the pickup.

Information of MAN, DRV, SID and HDM Circuit Boards
During servicing, replace the entire MAN circuit board, and the entire
disc drive unit, including the DRV, SID and HDM circuit boards.
Because of this servicing method, this service manual includes only the
simplified circuit board diagrams, and does not include any schematic
circuit diagrams.
The simplified circuit board diagrams show the major voltage values:
Refer to them during troubleshooting.

Information of MAN, DRV, SID and HDM Circuit Boards

During servicing, replace the entire MAN circuit board, and the entire disc drive unit, including the DRV, SID and HDM circuit boards.

Because of this servicing method, this service manual includes only the simplified circuit board diagrams, and does not include any schematic circuit diagrams.

The simplified circuit board diagrams show the major voltage values: Refer to them during troubleshooting.

HDM -SIDE A-

Note: Voltage values are in reading status.
      Example: 24 (4.7): Terminal no. (voltage value)
      Supplement: Since the DVD drive is intermittently operated, set to the reading status in which laser light is emitted from the pickup.

HDM -SIDE B-

SID -SIDE A-
[PATTERN No.JA2084-4]

SID -SIDE B-
[PATTERN No.JA2084-4]
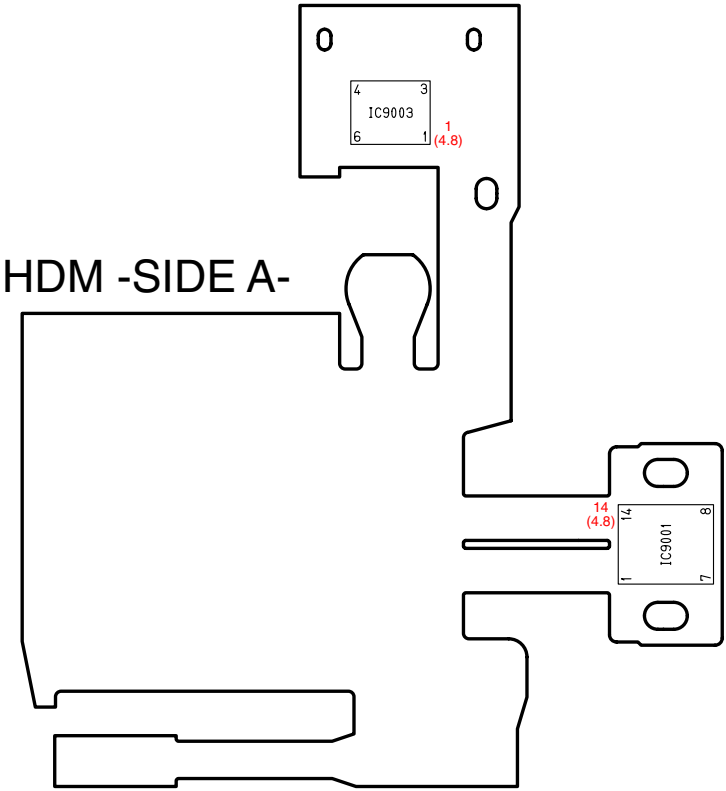
3-15 Identification of Parts Location

LCD

Symbol No.	Parts Location	Symbol No.	Parts Location
C		R3435	3A
C3401	3B	R3436	3A
C3402	3B	R3437	3A
C3403	3B	R3479	2A
C3404	3B	**T**	
C3405	2B	T3401	2A
C3406	2B	**TL**	
C3407	3B	TL3418	4B
C3408	2B	TL3462	1C
C3409	2C		
C3410	3C		
C3411	3C		
C3412	3B		
C3413	3B		
C3414	3B		
C3415	3A		
C3416	3A		
C3417	3A		
C3418	2A		
C3419	3A		
C3420	2B		
C3451	2A		
C3452	1A		
C3453	1A		
C3455	3A		
D			
D3401	3A		
D3402	3A		
IC			
IC3401	3B		
L			
L3401	3B		
L3402	2A		
L3403	3A		
L3441	2A		
PG			
PG3401	3B		
PG3402	2B		
PG3403	3A		
Q			
Q3409	2C		
Q3410	3C		
Q3411	2A		
R			
R3407	2B		
R3408	3B		
R3409	2B		
R3410	2B		
R3411	2C		
R3412	2C		
R3413	3C		
R3414	3C		
R3415	3C		
R3419	3A		
R3422	2C		
R3423	3C		
R3427	4A		
R3434	3A		

AEL

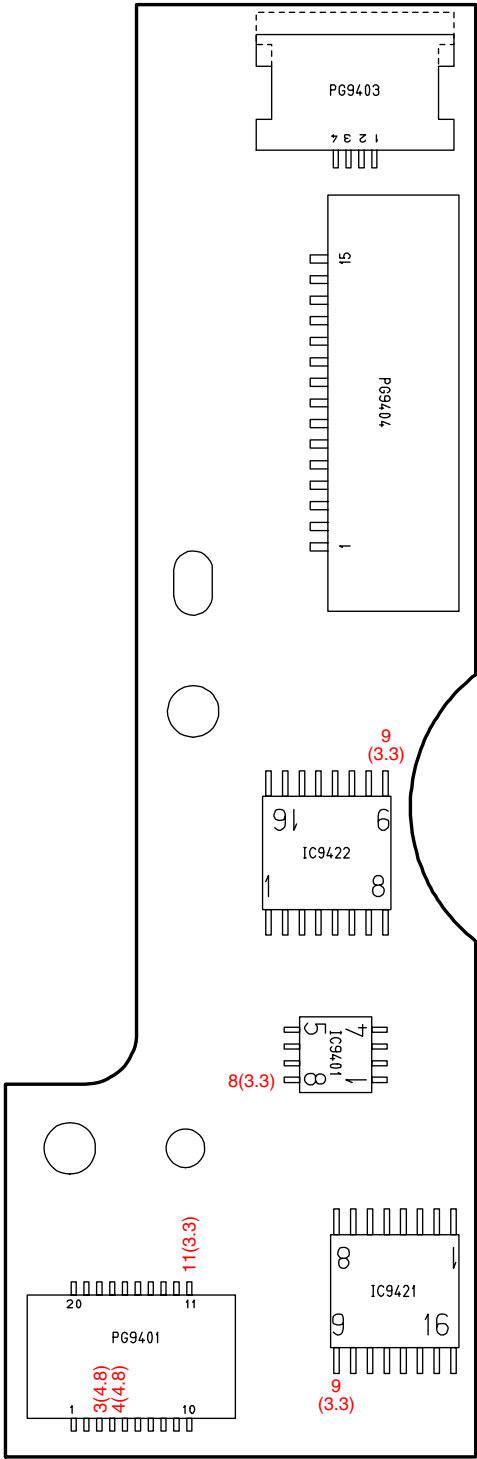| Symbol No.	Parts Location
BL	
BL1301	A-3B
BL1302	B-3A
BL6201	A-2C
BL6202	A-2D
C	
C1302	B-3A
C1303	A-3A
C1304	A-3A
C1305	B-3A
C1306	B-3A
C1307	B-3B
C1308	B-3B
C1309	B-3B
C1310	B-2A
C1311	B-3A
C1312	B-3A
C1314	B-3A
C1315	B-3A
C1316	B-3A
C1318	B-2A
C1319	A-3A
C1320	A-3A
C1321	A-3A
C1322	A-3A
C1323	A-3A
C1324	B-2A
C1325	B-3B
C1326	B-3B
C1327	B-3B
C1329	B-3A
C1330	B-3A
C1331	A-3B
C1332	B-3B
C3704	A-1E
C3705	A-1E
C3706	A-3E
C3707	A-3E
C3708	A-3E
C3710	A-2E
C3711	A-2D
C3713	A-2D
C3714	A-2D
C3715	A-2D
C3716	A-2E
C3717	A-2E
C3718	A-2E
C3721	A-1E
C3723	A-1E
C3724	A-1E
C3725	A-2E
C3728	A-2D
C3736	A-3E
C3737	A-3E
C3738	A-3E
C3891	A-2E
C3892	A-3D
C3893	A-3D
C3895	A-3D
C3896	A-3D
C6101	A-2B
C6102	A-2B
C6103	A-2B
C6104	A-2B
C6105	A-2B
C6106	A-2A
C6107	A-2A
C6108	A-2A
C6109	A-2A
C6110	A-2A
C6111	A-2B
C6112	A-2A
C6113	A-2A
C6114	A-2B
C6115	A-2B
C6116	A-2A
C6117	A-2B
C6118	A-2B
C6119	A-2C
C6120	A-2C
C6121	A-2C
C6126	A-2B
C6127	A-2B
C6128	A-2C
C6129	A-2C
C6131	A-2C
C6201	A-2D
C6202	A-2D
C6203	A-2C
C6204	A-2C
C6205	A-2C
C6206	A-2C
C6207	A-2C
C6208	A-2C
C6301	A-1B
C6302	A-1B
C6303	A-1C
C6304	A-1C
C6305	A-1C
C6306	A-1B
C6307	A-1C
C6308	A-1C
C6309	A-1C
C6310	A-1C
C6311	A-1C
C6312	A-1B
C6313	A-1C
C6314	A-1C
C6315	A-1C
C6316	A-1B
C6317	A-1C
C6318	A-1C
C6319	A-1B
C6320	A-1B
C6321	A-1B
C6322	A-1B
C6323	A-1B
C6324	A-1B
C6326	A-1B
C6327	A-1B
C6328	A-1B
C6329	A-1B
C6330	A-1B
C6331	A-1B
C6332	A-1B
C6333	A-1B
C6334	A-1B
C6336	A-2B
C7001	B-1B
C7002	A-1D
C7004	A-2B
C7013	B-1B
C7014	B-1C
D	
D3702	A-2D
D6301	A-1C
D7001	A-2B
IC	
IC1301	B-3A
IC1302	A-3A
IC1303	A-3A
IC3701	A-2E
IC6101	A-2A
IC6102	A-2C
IC6103	A-1B
IC6201	A-2D
IC7001	A-1D
L	
L3704	A-2E
L3891	A-3D
L3892	A-3D
L3893	A-3D
L6102	A-2B
L6103	A-2C
L6301	A-1C
L6302	A-2C
L6303	A-1C
L6304	A-1B
L6305	A-1B
L6306	A-1B
PG	
PG1301	A-3B
PG7001	B-2B
PG7002	A-3B
PG7003	B-3A
PG7004	A-2E
PG7008	A-2B
PG7009	A-3C
Q	
Q1301	A-3B
Q1302	B-3A
Q1303	A-3B
Q1304	B-2B
Q3891	A-2E
Q3892	A-2E
Q6101	A-2B
Q6102	A-2A
Q6103	A-2B
Q6104	A-2B
Q6105	A-2B
Q6108	A-2B
Q6204	A-2B
Q6207	A-2B
Q6208	A-2B
Q7001	A-3D
Q7002	A-3D
Q7009	B-1B
R	
R1302	B-3A
R1303	B-3A
R1304	B-3A
R1305	B-3A
R1306	B-3B
R1307	B-3B
R1308	B-3B
R1310	B-3B
R1312	B-3B
R1314	B-3B
R1315	B-3A
R1317	B-3A
R1318	B-3A
R1319	A-3A
R1320	A-3A
R1321	A-3A
R1322	A-3A
R1323	A-3A
R1324	A-3A
R1325	A-3A
R1326	A-3A
R1327	A-3A
R1328	A-3A
R1329	A-3B
R1330	A-3B
R1332	B-3A
R1333	A-3A
R1334	A-3A
R1335	B-3A
R1337	A-3A
R1341	A-3A
R1347	B-3B
R1349	B-2A
R1350	B-2A
R1353	B-2A
R1355	A-3B
R1361	A-3A
R1363	A-3A
R1364	A-3A
R1366	B-2A
R1367	B-3A
R1369	B-2A
R3703	A-2E
R3704	A-2E
R3705	A-2E
R3706	A-2E
R3707	A-2D
R3707	A-2D
R3708	A-2D
R3708	A-2D
R3709	A-2D
R3710	A-2E
R3711	A-2D
R3712	A-1E
R3713	A-1E
R3714	A-1E
R3716	A-3D
R3717	A-2D
R3718	A-3E
R3719	A-3E
R3731	A-3D
R3732	A-3E
R3733	A-2E
R3734	A-2E
R3735	A-3E
R3736	A-2D
R3891	A-2D
R3892	A-2D
R6101	A-2B
R6102	A-2B
R6103	A-2B
R6104	A-2B
R6105	A-2B
R6106	A-2B
R6107	A-2B
R6108	A-2B
R6109	A-2B
R6110	A-2A
R6111	A-2A
R6112	A-2A
R6113	A-2A
R6114	A-2A
R6115	A-2A
R6116	A-2A
R6117	A-2B
R6118	A-2B
R6119	A-2A
R6120	A-2A
R6121	A-2B
R6122	A-2B
R6123	A-2B
R6124	A-2B
R6125	A-2B
R6126	A-2B
R6127	A-2A
R6128	A-2A
R6129	A-2A
R6130	A-2B
R6131	A-2B
R6132	A-2B
R6133	A-2B
R6134	A-2C
R6135	A-2C
R6136	A-2C
R6137	A-2C
R6138	A-2C
R6139	A-2C
R6140	A-2C
R6141	A-2C
R6149	A-2B
R6150	A-2B
R6151	A-2B
R6152	A-2B
R6158	B-1B
R6201	A-2C
R6202	A-2C
R6205	A-2C
R6206	A-2C
R6207	A-2C
R6208	A-2C
R6209	A-2D
R6301	A-1B
R6302	A-1C
R6304	A-1C
R6306	A-1C
R6307	A-1C
R6308	A-1C
R6309	A-2B
R6310	A-2C
R6311	A-1B
R6312	A-1B
R6313	A-1B
R6314	A-1B
R6316	A-1B
R6317	A-1B
R6318	A-1B
R6319	A-1B
R6324	A-1B
R6325	A-1B
R6326	A-1B
R6327	A-1B
R6328	A-1B
R6330	A-1B
R6331	A-2C
R7006	A-1A
R7007	A-2B
R7009	A-1A
R7010	A-1A
R7011	A-2B
R7012	A-1A
R7013	A-1A
R7014	A-2B
R7015	A-1A
R7016	A-2B
R7018	A-1A
R7020	A-2B
R7021	A-3C
R7022	A-3C
R7023	A-3B
R7024	A-3C
R7025	A-2B
R7026	A-3C
R7029	A-2B
R7030	B-2A
R7031	B-2A
R7032	A-2E
R7036	A-2E
R7037	A-3C
R7038	A-3C
R7049	A-3C
R7050	A-3C
R7051	A-2B
R7052	A-2B
R7053	A-2B
R7054	A-1A
R7055	A-2B
R7056	A-2B
R7057	A-2B
R7058	A-1A
R7060	A-3D
R7061	A-3D
R7065	A-2C
R7077	B-3C
R7088	B-3C
SW	
SW7001	A-1D
TL	
TL3719	B-1E
TL6101	B-2C
TL6102	B-2C
TL7041	A-3C
ZD	
ZD7002	A-2D

4. Block Diagrams

4-1 Video/Audio Signal Process Section Block Diagram

4-2 Disc Drive Section Block Diagram

4-3 Power-1 Block Diagram

BATTERY TERMINAL

REAR COVER

ZOOM SW/ REC SW/ EJECT SW

POWER SW/ SPEAKER/ CARD SLOT

DISC COVER

SEN

MAN

PG0501 1-5 F0501 IC1502 7 6 SYS3V

IC1503 12, 54 10 IC1505

B/U3V 3

1.6V REG. 1.6V IC2006

3V REG. 3V

CN8051 PG1503 4 4 3V

CN8061 PG1502 11 11 3V

IC4002 3V

IC4003 14

IC1504 8 IC2007 14 IC2003 13, 17, 18, 24, 27, 33, 40, 43, 44

IC1507 5 IC2009 IC2004 10,13,15, 19,25,31 [TYPE 8A ONLY]

IC2008 1,3 IC2001 14 IC2010 3V IC2011 14

IC5002 5 IC5001 10, 17, 32, 42, 51, 57, 62

F0502 -8V IC0502 2, 5 6 -7V 15V IC2002 3V 6 2 16, 20

TRANSFER 12V

5V REG

IC1001 CCD PG1001 PG2001 15V 4 4 1 14 15 15 -7V

F0503 IC1501 1, 3

5V REG 5V SW 3 IC6001 [TYPE 8A ONLY]

F0504 2.5V REG

3V REG 5V REG

IC0501 17 23 27, 52, 58, 59

DRF

PG2002 PG2031 PG2302 PG9701 25, 26 25, 26 25, 26 25, 26 3V
28, 43 28, 43 28, 43 28, 43 2.5V
30-33, 38-41 30-33, 38-41 30-33, 38-41 30-33, 38-41 5V

DISC DRIVE UNIT (DRV) [Refer to power-2]

PG1501 PG7001 10 10 SYS3V B/U3V 103 103

78, 79 78, 79 C3V

IC4106 22, 30, 36 5 IC4006

IC4005 5

81 81

2 2 LEN3V

L6301 22 30
L6303 34
L6305 61
SP3V L6304 51
54
L6306 2

IC6103 VIDEO/ AUDIO AMP

C5V BL6201 13, 14 IC6201 A/D & D/A CONV. 17 BL6202

L6103 4 IC6101 MIC AMP

IC6102 MIC AMP 8

82, 82, 83 83 AF+B D2.5V 3V 6

80 80 C5V
17 17 C12V
119 119 LEN5V
24, 24, 97 97

5V REG

IC3701 EVF DRIVER 37, 41 19, 20, 55 53

L3891 L3892 L3893 C3V

PG7003 CN7003 5 5 C5V

AEL

Q1302 AF5V SW C3V 25, 49 IC1301 AF/ZOOM/ IRIS DRIVE 54 53 AF+B

LEN3V 8 LEN5V 6

IC1302 IRIS DET. 8

IC1303 IRIS DET. 5

C3V IC7001 DECODER 8, 9

BL6201 LEN5V

PG7009 PG0151 25 25 27 27 23 23 B/U3V

C3V PG0154 CN1401 15 15 1

Q3891 EVF5V SW

PG7008 PG3401 11 15

INV5V C3V 21 5 22, 23 3, 4

L3402 37, 45 L3403 21 PG3403

T3401 TRANSFER L3441 3

PG7002 ADJUSTMENT 10 SYS3V 36 C3V

AF MOTOR/ ZOOM MOTOR/ IRIS

FENC VCC (3V) PG1301 14

LENS UNIT

EVF UNIT PG0153 1 EVF5V 2 VDD(12V)

SHE

IC1403 DET. 8

Q3409 12V SW PG3402 14, 18 VDD/SLVSG (12V)

IC3401 LCD DRIVER 13

GYR

IC1401 3 V_MOVE
IC1402 3 H_MOVE

2.5 LCD

IC3401 REVERSE SW 2 1, 4

IC3402 OPEN/ CLOSE SW

LCD

MR

CN1801 PG1801 5 5 L1801 4 IC1801 IR RECEIVER

FAF

FRT

- 25 -

DISC DRIVE UNIT

DRF
[Refer to Power-1]

PG2302
30-33,
38-41

PG9701
30-33,
38-41

5V

3V   25, 26   25, 26

2.5V   28, 43   28, 43

11, 23, 50,
73, 82

57

30

15, 16

8

8

DRV

IC9501

IC9101

IC8501

IC9304

IC9305

IC9306

IC9502

IC9506

IC9601

3V
SW

5

IC9602

IC9603

IC9605

IC9610

IC9350

IC9352

IC9417

6, 8

5

8

8

8

4

5V
SW

IC9201

IC9302

5V
SW

EJECT
5V
SW

16, 17,
32, 34,
44, 49,
64

1, 3,
14, 16,
17, 32

IC9001

IC9002

IC9005

IC9006

4

4

5

5

IC9007

IC9353

IC9354

IC9355

5

8

8

8

3V

PG9301
3, 4

5V

11
3V

11

PG9401
3, 4

11

7, 22,
23

8

8

9

9

IC9301

IC9401

IC9402

IC9421

IC9422

SID

PG9103
42, 43,
46, 47

PG9001
42, 43,
46, 47

41

11, 12

41

11, 12

5V

3V

5V

HDM

PG9303
4

EJECT
5V

LOCK
UNIT

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